

FY 2016 Economic Impact Analysis of Maryland's Military Installations

Prepared for
Maryland Department of Commerce

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December 18, 2018

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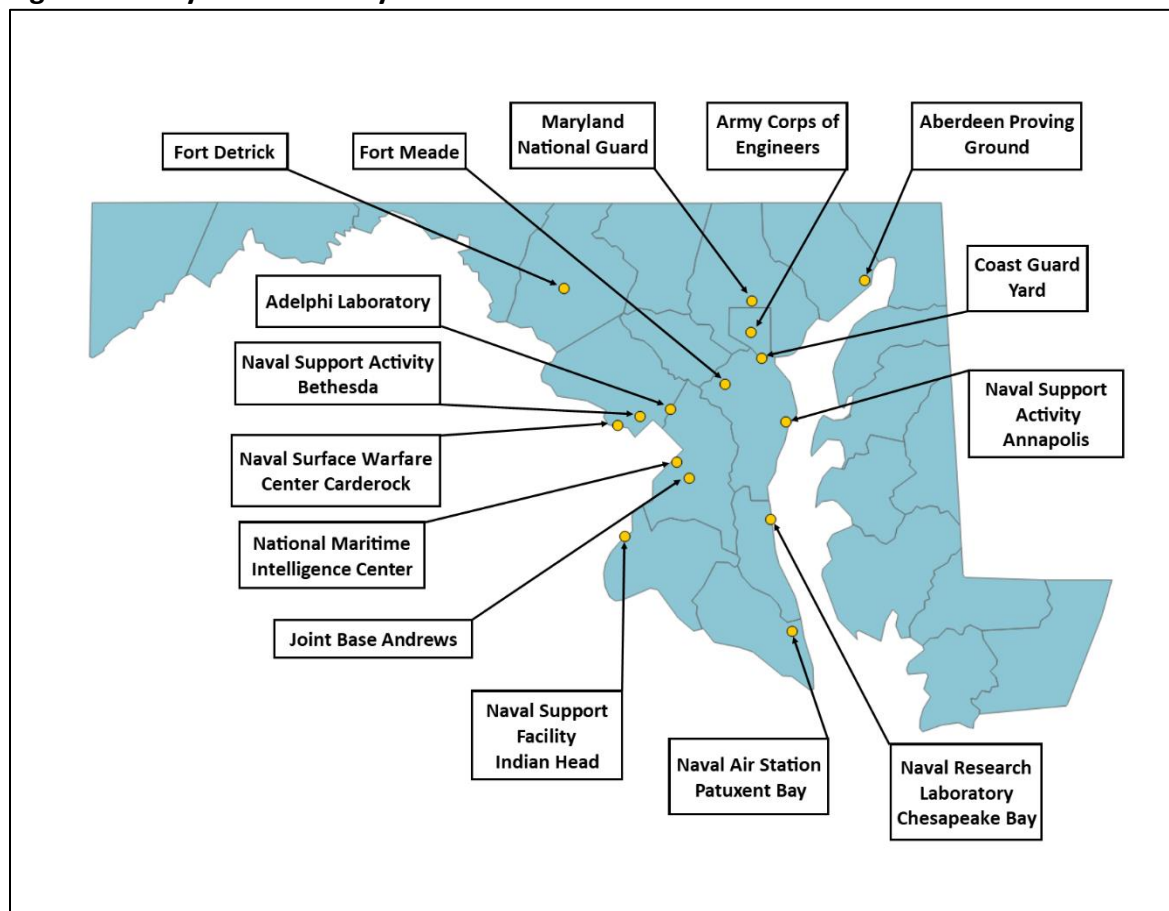
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1.0 Executive Summary

With its proximity to the nation's capital and a wealth of natural and human capital resources, Maryland is well positioned to serve the needs of the defense community, and is home to numerous military installations and other facilities. To understand the contribution that Maryland's military installations make to the statewide economy, the Maryland Department of Commerce ("Commerce") tasked the Regional Economic Studies Institute (RESI) of Towson University with enumerating the economic impacts of Maryland's military installations on the statewide economy in FY 2016. This analysis of data for FY 2016 builds upon previous analyses conducted for FY 2012 and FY 2008. Due to the extensive time and effort expended by the installations during this analysis, one installation discovered a minor error in the reporting methodology used for the previous report, which was corrected for this study. As a result, RESI has revised some impacts from the analysis of FY 2012 data to allow for more direct comparisons and to reflect the new, more accurate reporting methodologies developed for FY 2016.

Installations that contributed to these economic impacts are illustrated in Figure 1 below.

Figure 1: Maryland's Military Installations



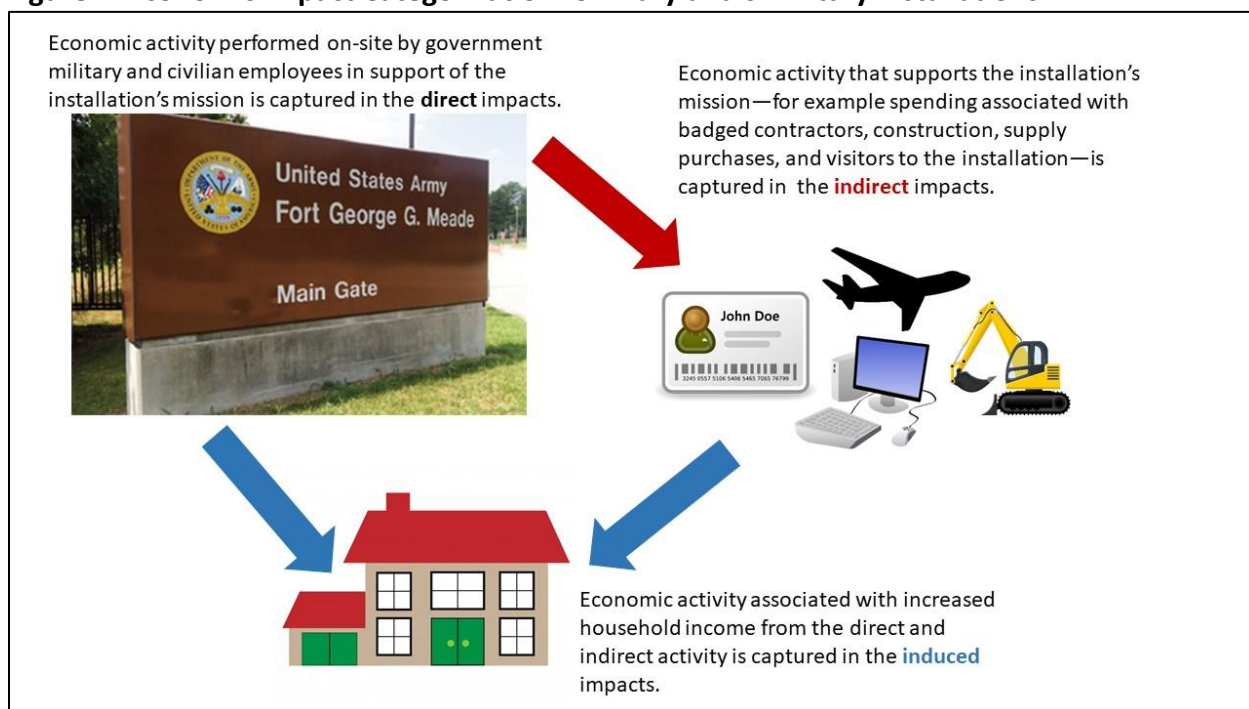
Sources: RESI, Tableau

1.1 Methodology Overview

RESI analyzed publicly available data and data directly provided by 15 installations. To account for the variety of economic activity that the installations support, RESI included each installation's total payroll expenditures, procurement and purchases to Maryland firms/vendors, and spending associated with visitors to the installation.

To enumerate the impacts, RESI used the IMPLAN model for the state of Maryland in 2015.¹ In addition to direct impacts that are the result of the installation carrying out its mission, economists consider the impacts of support activities and purchases (indirect impacts), as well as purchases that result from employees receiving more income (induced impacts). The sum of these three types of impacts is the total economic impact. The schematic below visually represents how the impacts of Maryland's military installations are categorized.

Figure 2: Economic Impact Categorization for Maryland's Military Installations



Source: RESI

1.2 Statewide Economic Impacts

Maryland's military installations have a significant impact upon the state's economy. As seen in Figure 3 below, Maryland's 15 military installations supported 374,522 jobs, \$55.5 billion in output, and \$22.1 billion in employee compensation in FY 2016.²

¹ The IMPLAN 2015 Maryland model was the most recent version of the model available at project kickoff.

² Please note that while this analysis is completed for FY 2016, some installations provided data for FY 2017.

FY 2016 Economic Impact Analysis of Maryland's Military Installations

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Figure 3: Aggregate Statewide Economic Impacts of Maryland's Military Installations, FY 2016

Impact	Direct	Indirect	Induced	Total
Employment	149,592	90,177	134,752	374,522
Output	\$25,105,895,962	\$15,777,903,354	\$14,658,893,470	\$55,542,692,786
Employee Compensation	\$11,199,927,193	\$6,642,801,197	\$4,296,981,097	\$22,139,709,488

Sources: Commerce, IMPLAN, RESI

The total economic impact of Maryland's military installations is a significant component of Maryland's economy. In 2016, Maryland's state GDP was \$380.8 billion dollars, indicating that economic activity associated with the military installations as reported in this analysis comprised 15.4 percent of the total state GDP.³ These impacts are felt across the economic spectrum and occur in industries ranging from high-tech research and development to retail. Total impacts (the sum of direct, indirect, and induced impacts) by installation are presented in Figure 4 below. While installations vary in size, area of specialty, and branches of the military that they represent, each is an important piece of Maryland's military ecosystem.

Figure 4: Total Economic Impacts by Installation, FY 2016

Installation	Employment	Output	Employee Compensation
Aberdeen Proving Ground	39,289	\$5,141,388,739	\$2,132,379,177
Adelphi Laboratory Center	4,538	\$612,452,247	\$288,145,586
Army Corps of Engineers—Baltimore District	5,596	\$797,223,878	\$298,623,213
Coast Guard Yard	3,396	\$469,423,814	\$170,926,025
Fort Detrick	29,700	\$6,545,625,179	\$2,346,917,459
Fort Meade	153,310	\$21,635,331,400	\$8,978,093,114
Joint Base Andrews	26,709	\$4,562,338,779	\$1,459,199,646
Maryland Military Department	3,929	\$1,042,356,357	\$291,255,766
National Maritime Intelligence Center	4,976	\$851,901,391	\$347,450,914
Naval Air Station Patuxent River	61,132	\$8,696,989,140	\$3,610,337,461
Naval Research Lab—Chesapeake Bay Detachment	57	\$9,695,139	\$3,920,114
Naval Support Activity Annapolis	12,958	\$1,593,784,541	\$502,445,921
Naval Support Activity Bethesda	19,417	\$1,900,320,994	\$871,872,079
Naval Support Facility Indian Head	6,309	\$874,589,484	\$424,911,675
Naval Surface Warfare Center—Carderock Division	3,205	\$809,271,704	\$413,231,338
Total	374,522	\$55,542,692,786	\$22,139,709,488

Sources: Commerce, IMPLAN, RESI

³ FRED Economic Research, "2016 Total Gross Domestic Product for Maryland," Federal Reserve Bank of St. Louis, accessed September 4, 2018, <https://fred.stlouisfed.org/series/MDNGSP>.

1.3 Comparison between FY 2012 and FY 2016 Impacts

RESI previously completed an economic impact analysis of military installations in Maryland for FY 2012. The results of the previous study estimated that Maryland's military installations supported over 410,000 jobs and \$57.4 billion in output. However, while conducting data gathering for the current round of impact analysis, one installation discovered a minor error in the reporting methodology used for the previous study. As a result, RESI revised the FY 2012 results to reflect the new reporting methodology and estimates that for FY 2012, Maryland's military installations supported 373,275 jobs, \$51.1 billion in output, and \$21.3 billion in employee compensation.

Compared to the revised FY 2012 analysis, economic activity associated with Maryland's military installations in FY 2016 has supported an additional 1,246 employees, an additional \$4.4 billion in output, and an additional \$0.9 billion in employee compensation at installations throughout the state. This change in impacts is the result of increased employment and payroll at Maryland's military installations, despite a decrease in procurement and purchases to Maryland firms. Decreased procurement occurred primarily in building construction and maintenance and contracts and purchases from Maryland firms.

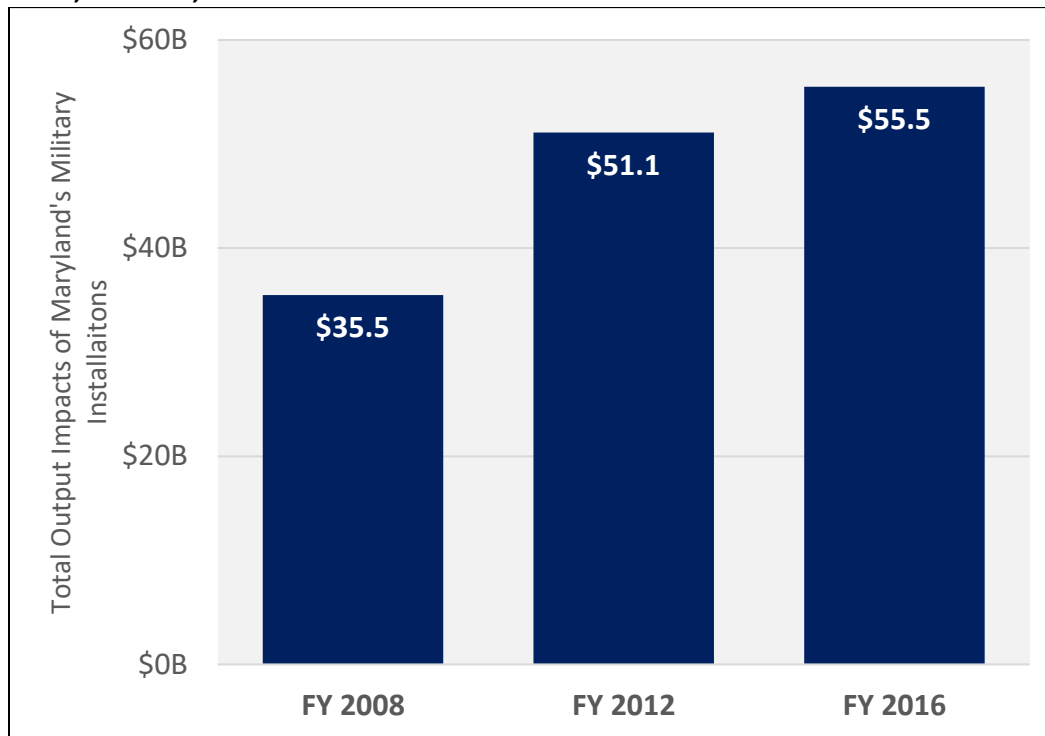
When compared to the findings of an analysis conducted for FY 2008, Maryland's military installations in FY 2016 supported an additional 110,351 jobs, \$20.0 billion in output, and \$5.3 billion in employee compensation. Figure 5 presents the total economic impacts supported by Maryland's military installations in FY 2008, FY 2012 (using the revised estimates), and FY 2016, while Figure 6 presents total output impacts specifically.

Figure 5: Total Economic Impacts of Maryland's Military Installations (Number of Jobs or Billions of Dollars): FY 2008, FY 2012, and FY 2016

Impact Type	FY 2008	FY 2012	FY 2016
Employment	264,170	373,275	374,522
Output	\$35.5	\$51.1	\$55.5
Employee Compensation	\$16.8	\$21.3	\$22.1

Sources: Jacob France Institute, Commerce, IMPLAN, RESI

Figure 6: Total Output Impacts (in Billions) Supported by Maryland's Military Installations: FY 2008, FY 2012, and FY 2016



Sources: Jacob France Institute, Commerce, IMPLAN, RESI

2.0 Introduction

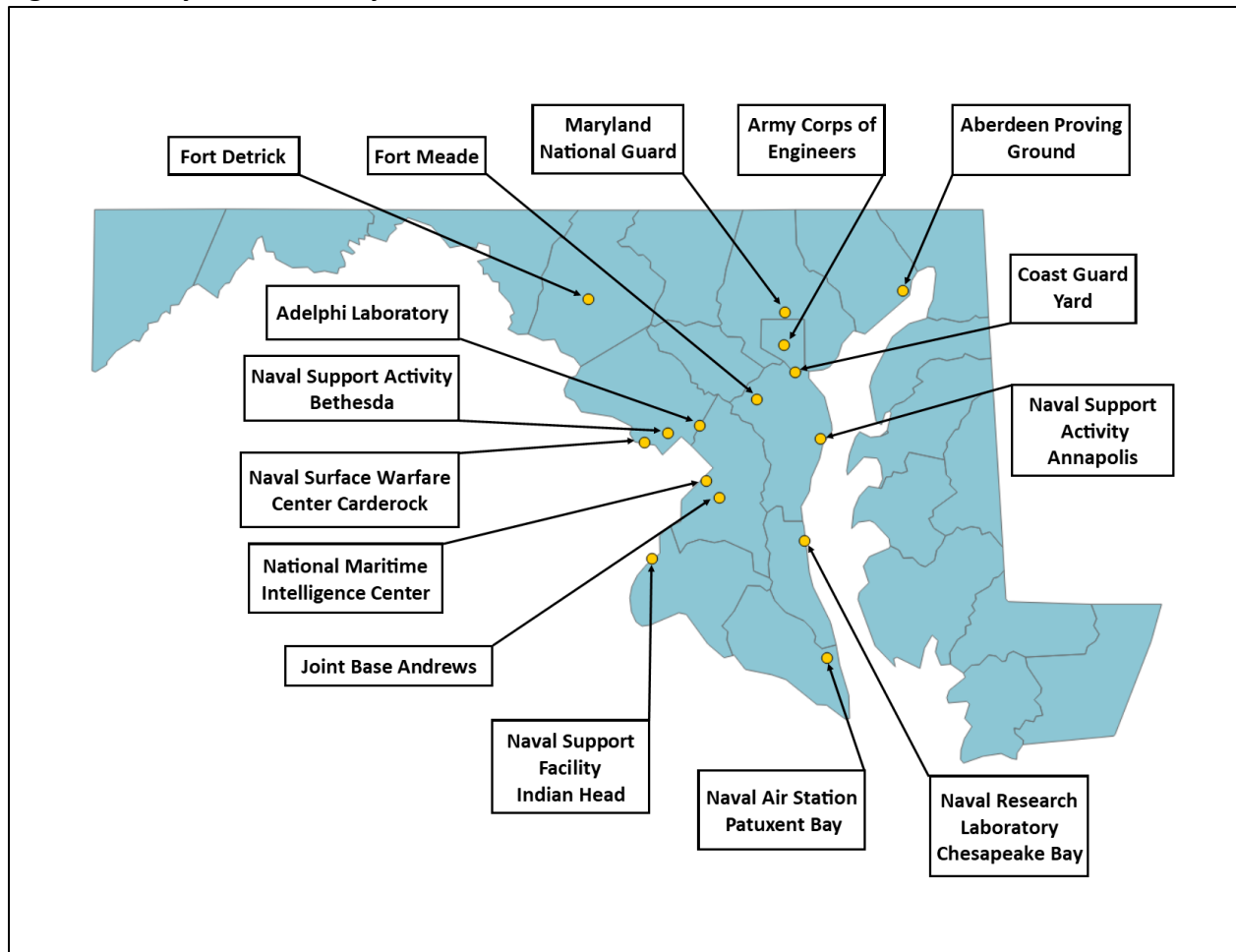
With its proximity to the nation's capital and a wealth of natural and human capital resources, Maryland is well positioned to serve the needs of the defense community and is home to numerous military installations and related facilities. To understand the contribution that Maryland's military installations make to the statewide economy, the Maryland Department of Commerce ("Commerce") tasked the Regional Economic Studies Institute (RESI) of Towson University with enumerating the economic impacts of Maryland's military installations on the statewide economy in FY 2016.⁴ To complete the analysis, RESI considered data from 15 installations in the state, including:

- Aberdeen Proving Ground;
- Adelphi Laboratory Center, including the Blossom Point Research Facility;
- Army Corps of Engineers—Baltimore District;
- The Coast Guard Yard;
- Fort Detrick;
- Fort Meade;
- Joint Base Andrews;
- Maryland Military Department;
- National Maritime Intelligence Center;
- Naval Air Station Patuxent River;
- Naval Research Lab—Chesapeake Bay Detachment;
- Naval Support Activity Annapolis;
- Naval Support Activity Bethesda;
- Naval Support Facility Indian Head; and
- Naval Surface Warfare Center—Carderock Division.

These 15 installations are shown in Figure 7. Installations throughout the state are primarily concentrated in central and southern Maryland, near Washington, DC, and coastlines.

⁴ Please note that while the focus of the study is FY 2016, some installations provided data for FY 2017.

Figure 7: Maryland's Military Installations



Sources: RESI, Tableau

To conduct the analysis, RESI received data from Commerce provided by the installations, in addition to accessing publicly available data. Data included in the analysis accounted for payroll at each installation, the installation's procurement and purchases from Maryland firms, and economic activity associated with visitors to the installation. This analysis of data for FY 2016 builds upon previous analyses conducted utilizing data from FY 2012 and FY 2008. Due to the extensive time and effort expended by the installations during this analysis, one installation discovered a minor error in the reporting methodology used for the previous report, which was corrected for this study. As a result, RESI has revised some impacts from the analysis of FY 2012 data to allow for more direct comparisons and to reflect the new, more accurate reporting methodologies developed for FY 2016.

The impacts presented in this report are likely a conservative estimate of the true influence of the military on the state of Maryland. This analysis only examines payroll, contracts, and visitor spending directly associated with 15 Maryland installations. However, the analysis does not capture the impact of defense contractors receiving funding directly from the Department of Defense, even if those contractors are located near an installation. Additionally, this analysis

does not capture many impacts that are difficult to quantify, such as STEM education programs located on Maryland's military installations.

This report is the culmination of RESI's analysis and continues as follows:

- Section 3.0 presents an overview of the methodology that RESI followed for the analysis;
- Section 4.0 provides overall impacts to the state of Maryland of all of the installations;
- Sections 5.0 through 19.0 present the impacts for each installation; and
- Section 20.0 concludes the report.

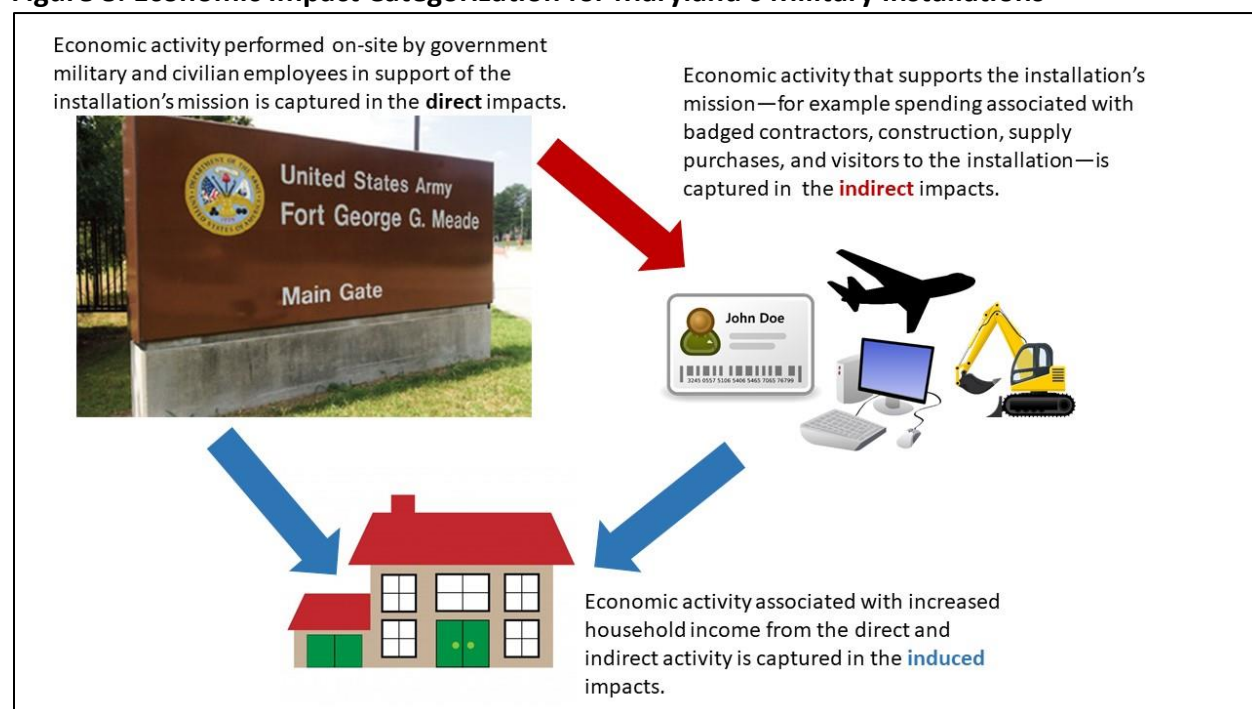
3.0 Methodology

To enumerate the economic and fiscal impacts of each of Maryland's military installations in FY 2016, RESI used the IMPLAN model for the state of Maryland in 2015.⁵ IMPLAN is an input-output model that relies on economic multipliers. When a dollar is spent in an economy, it is used to buy supplies, fund supporting activities, and pay employees, who then buy goods and services. The suppliers of other support services can then buy supplies and pay employees who in turn buy more goods and services, and the cycle continues. Thus, while initially a single dollar was spent, its cumulative value has multiplied as it has passed through additional hands.

In addition to **direct** impacts, economists consider the impacts of support activities and purchases (**indirect** impacts), as well as purchases that result from employees receiving more income (**induced** impacts). The sum of these three types of impacts is the total economic impact. The schematic below visually represents how the impacts of Maryland's military installations are categorized.

⁵ The IMPLAN 2015 Maryland model was the most recent version of the model available at project kickoff.

Figure 8: Economic Impact Categorization for Maryland's Military Installations



Source: RESI

Economic impacts are measured in terms of employment, output, and employee compensation.

- **Employment** impacts show the average number of jobs that the economic activity modeled in IMPLAN supports over the course of a year.
- **Output** impacts represent the value of the work product that is supported by the economic activity modeled in IMPLAN.
- **Employee compensation** impacts show the amount of wages and other compensation (benefits, unemployment insurance, etc.) that correspond to the economic activity modeled in IMPLAN.⁶

For these analyses, RESI estimated the economic impacts—in terms of employment, output, and employee compensation—that stem from total government payroll at the installation, procurement and purchases to Maryland firms or vendors, and activity from visitors to the installation.⁷ For more information on the methodology used, as well as a glossary of terms and an example of economic impacts, please see Appendix A.

⁶ "Glossary," IMPLAN, accessed March 26, 2018, <https://implanhelp.zendesk.com/hc/en-us/sections/115002653168-Glossary>.

⁷ RESI then estimated the tax revenues, or fiscal impacts, generated by the economic impacts for each facility, which are presented in Appendix D.

3.1 Receipt of Data and Data Analysis

RESI utilized a methodology consistent with previous analyses conducted by the Jacob France Institute (analyzing FY 2008 data) and RESI (analyzing FY 2012 data). RESI provided a data template to Commerce for distribution to each military installation. This template requested information regarding personnel, payroll, and contracts/purchases by type at the county, state, and total level, as well as information regarding the number of visitors to the installation. While all of the reported information helped RESI to better understand activity at the military installations, RESI used three categories in particular for the IMPLAN analysis.

1. **Total payroll:** RESI included total payroll for all military and government civilian workers. RESI excluded any payroll associated with badged contractors to avoid double counting (see point two below). These total payroll figures were entered into the IMPLAN model and produced direct and induced effects, as IMPLAN does not report indirect impacts for government inputs due to procurement practices that do not mirror the private sector. For this reason, RESI also considered procurement and purchases to Maryland firms (please see point two below).
2. **Maryland procurement and purchases:** RESI included the reported value of all procurement and purchases to Maryland firms. These spanned categories such as building construction and maintenance, utilities, contracts and purchases, and education payments. Since this category includes contracts, badged contractors are captured in this category in the analysis. RESI entered these dollar amounts into the appropriate IMPLAN codes and estimated impacts using IMPLAN multipliers. These impacts are categorized as indirect impacts because they support the mission of the installation and the active duty and civilian workers on-site.
3. **Visitor spending:** To maintain consistency with past methodologies, RESI applied standard visitor spending totals consistent with previous analyses for each visitor that an installation reported.⁸ These standardized dollar amounts for meals and lodging were then entered into the IMPLAN model to estimate impacts.

For each installation, RESI ran three IMPLAN analyses, one for each input category listed above. Each IMPLAN analysis estimates the direct, indirect, and induced impacts for employment, output, and employee compensation associated with the input category. To calculate the overall impact of the installation, RESI reports the impacts consistent with Figure 9 below.

⁸ To maintain consistency with previous analyses, RESI assumed that each visitor spent \$143 per day, allocated between lodging and meals.

Figure 9: Reporting Methodology for IMPLAN Analyses

Input Category	Type of Effect	Included in: Overall Direct	Included in: Overall Indirect	Included in: Overall Induced
Payroll	Direct	X		
	Indirect			
	Induced			X
Procurement and Purchases	Direct		X	
	Indirect		X	
	Induced			X
Visitor Spending	Direct		X	
	Indirect		X	
	Induced			X

Sources: Jacob France Institute, RESI

Only the direct employment, employee compensation, and output associated with payroll for the installation are shown as direct impacts; the direct impacts for procurement and purchases and visitor spending are included as indirect impacts for the base as a whole. Indirect impacts are associated with supplies and services needed to support the work of whatever is being measured as a direct impact. Therefore, RESI estimated direct and indirect impacts of procurement and purchases as well as visitor spending as indirect impacts of the base.

In Figure 9, please note that indirect impacts associated with payroll are blank because IMPLAN does not calculate indirect impacts of government payroll. This does not result in underestimating the impact of a given installation because procurement and purchases estimate these values, so including both effects would be considered double counting.

For this analysis, RESI received data from the installations (as a whole or from individual tenants of installations) via Commerce. In some instances, in consultation with Commerce, RESI supplemented the data that installations provided with publically available data. RESI then standardized the data using a template, developed inputs for each installation to be used in the IMPLAN model, and then used the IMPLAN model to calculate economic impacts.

3.2 Data Limitations and Obstacles

While efforts were made to maintain consistency between the current and previous analyses, certain limitations apply. Data were provided by the installations and Commerce, and while each installation received the same template to provide data for this analysis (which was comparable to the template provided in previous analyses), not all data were reported in the same way. For example, some installations provided data but did not utilize the provided template, whereas other installations provided only a portion of the requested information. Furthermore, given the sensitive nature of the work done at Maryland's military installations, some information could not be provided for measures of national security. In some instances, RESI made additional assumptions in consultation with Commerce to construct data estimates that would provide a more accurate overall picture of the economic landscape with regard to

Maryland's military installations. In other cases, RESI utilized publically available employment data to aid in the development of accurate data estimates. The information used in the analysis reflects the best data available at the time of the study.

Due to the extensive time and effort expended by the installations during this analysis, one installation discovered a minor error in the reporting methodology used for the previous report, which was corrected for this study. As a result, RESI has revised some impacts from the analysis of FY 2012 data to allow for more direct comparisons and to reflect the new, more accurate reporting methodologies developed for FY 2016.

It is also important to note that several installations have experienced changes since FY 2012. For example, some installations are now experiencing the normalization of spending to pre-conflict levels as well as the completion of construction projects for base realignment and closures (BRAC) efforts in the interim.⁹ However, despite some installations experiencing these reductions in spending when FY 2012 and FY 2016 are considered, the overall trends between data from FY 2012 and FY 2016 show growth in economic activity over time.

4.0 Aggregate Statewide Impacts

This section provides aggregated impacts for all of Maryland's military installations. In total, economic activity associated with military installations in the state supports 374,522 jobs, \$55.5 billion in output, and \$22.1 billion in employee compensation, as seen in Figure 10.

Figure 10: Aggregate Statewide Economic Impacts of Maryland's Military Installations, FY 2016

Impact	Direct	Indirect	Induced	Total
Employment	149,592	90,177	134,752	374,522
Output	\$25,105,895,962	\$15,777,903,354	\$14,658,893,470	\$55,542,692,786
Employee Compensation	\$11,199,927,193	\$6,642,801,197	\$4,296,981,097	\$22,139,709,488

Sources: Commerce, IMPLAN, RESI

The total economic impact of Maryland's military installations is a significant component of Maryland's economy. In 2016, Maryland's state GDP was \$380.8 billion dollars, indicating that economic activity associated with the military installations as reported in this analysis comprised 15.4 percent of the total state GDP.¹⁰ Given Maryland's extensive network of military installations, these impacts are felt throughout the state. Figure 11 provides more detail as to how specific installations contribute to the overall economic impacts estimated.

⁹ Private correspondence with the installations.

¹⁰ FRED Economic Research, "2016 Total Gross Domestic Product for Maryland," Federal Reserve Bank of St. Louis, accessed September 4, 2018, <https://fred.stlouisfed.org/series/MDNGSP>.

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Figure 11: Total Economic Impacts by Installation, FY 2016

Installation	Employment	Output	Employee Compensation
Aberdeen Proving Ground	39,289	\$5,141,388,739	\$2,132,379,177
Adelphi Laboratory Center	4,538	\$612,452,247	\$288,145,586
Army Corps of Engineers—Baltimore District	5,596	\$797,223,878	\$298,623,213
Coast Guard Yard	3,396	\$469,423,814	\$170,926,025
Fort Detrick	29,700	\$6,545,625,179	\$2,346,917,459
Fort Meade	153,310	\$21,635,331,400	\$8,978,093,114
Joint Base Andrews	26,709	\$4,562,338,779	\$1,459,199,646
Maryland Military Department	3,929	\$1,042,356,357	\$291,255,766
National Maritime Intelligence Center	4,976	\$851,901,391	\$347,450,914
Naval Air Station Patuxent River	61,132	\$8,696,989,140	\$3,610,337,461
Naval Research Lab—Chesapeake Bay Detachment	57	\$9,695,139	\$3,920,114
Naval Support Activity Annapolis	12,958	\$1,593,784,541	\$502,445,921
Naval Support Activity Bethesda	19,417	\$1,900,320,994	\$871,872,079
Naval Support Facility Indian Head	6,309	\$874,589,484	\$424,911,675
Naval Surface Warfare Center—Carderock Division	3,205	\$809,271,704	\$413,231,338
Total	374,522	\$55,542,692,786	\$22,139,709,488

Sources: Commerce, IMPLAN, RESI

As seen above, economic activity related to Fort Meade comprises the plurality of the impacts statewide, with Naval Air Station Patuxent River creating the second-largest impact. In terms of employment, Aberdeen Proving Ground supports the third-largest impact in the state, while Fort Detrick supports the third-largest output and employee compensation impacts.

RESI also considered how the impacts of Maryland's military installations have changed over time. Figure 12 contains the total economic impacts of Maryland's military installations in FY 2008, FY 2012, and FY 2016, while Figure 13 presents total output impacts specifically. For impacts in FY 2008, FY 2012, and FY 2016 at the installation level, please see Appendix D.

Figure 12: Total Economic Impacts of Maryland's Military Installations (Number of Jobs or Billions of Dollars): FY 2008, FY 2012, and FY 2016

Impact Type	FY 2008	FY 2012	FY 2016
Employment	264,170	373,275	374,522
Output	\$35.5	\$51.1	\$55.5
Employee Compensation	\$16.8	\$21.3	\$22.1

Sources: Jacob France Institute, Commerce, IMPLAN, RESI

Figure 13: Total Output Impacts Supported by Maryland's Military Installations: FY 2008, FY 2012, and FY 2016



Sources: Jacob France Institute, Commerce, IMPLAN, RESI

Compared to FY 2012, Maryland's military installations had an increased economic impact upon the state economy: total employment increased by 1,247 jobs, output increased by \$4.4 billion, and employee compensation increased by \$0.9 billion.¹¹ Compared to FY 2008, Maryland's military installations in FY 2016 supported an additional 110,352 jobs, \$20.0 billion in output, and \$5.3 billion in employee compensation.

While the best data available at the time were utilized in the analysis, variations in the level of detail for reporting exist. In some instances, data could not be disclosed for reasons of national security, leading RESI to use, in consultation with Commerce, conservative estimates. These conservative estimates may underrepresent the true impact of some installations in the state. In other instances where data could not be made available, RESI, in consultation with Commerce, utilized publically available data to supplement the analysis.

Furthermore, some installations indicated that sizable construction projects were completed during the timeframe between the analyses. This led to decreased construction expenditures in FY 2016 as compared to FY 2012, concurrent with some installations normalizing spending patterns to pre-conflict levels. However, even with these data fluctuations, the captured impacts show that Maryland's military installations are an increasingly important part of the state economy.

¹¹ As mentioned in Section 3.2, FY 2012 impacts in this report have been revised from the original estimates published in 2015. The revisions correct an error identified by one installation during the data gathering phase and ensure comparability across reporting periods.

5.0 Aberdeen Proving Ground

Aberdeen Proving Ground (APG) is a U.S. Army installation that spans approximately 72,500 acres in Harford County, Maryland. APG was first established in 1917, just months after the United States entered World War I.¹² Initially, APG was used to test military equipment and to conduct military artillery training. Today, APG is the Army's oldest active proving ground and remains dedicated to a wide range of Army research, training, and testing. APG is also home to six Centers of Excellence: Research and Development; Command, Control, Communication, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR); Test & Evaluation; Public Health Sciences; Chemical & Biological (CHEMBIO); and Personnel Security Investigation.^{13,14} APG is currently Harford County's largest employer and an iconic landmark of the local area.¹⁵

With the execution of the 2005 Base Realignment and Closure (BRAC) decisions, APG experienced its largest expansion since World War II. There are currently over 21,000 civilians, military personnel, and contractors employed at APG.¹⁶ With family members and retirees, APG supports over 27,000 personnel.¹⁷ There are currently 11 major commands stationed on APG, and the facility works with over 90 tenant organizations,¹⁸ 20 satellites, and 17 private sector organizations.¹⁹ APG has continued its specialization in developing and testing Army vehicles, tanks, chemical warfare research, and recently added a new focus of cybersecurity.²⁰ APG takes pride in its adaptability to the needs of the U.S. Army and continued importance to the success of military research and operations.

APG provided data for payroll, procurement, and visitor information for FY 2016. Total payroll at APG exceeded \$1.0 billion, with nearly \$929.7 million of this total payroll going to Maryland residents. Of the approximately \$13.1 billion in procurement and purchases, nearly \$1.3 billion was spent in Maryland. Visitors to the base spent an estimated \$27.5 million in FY 2016. Generally speaking, spending associated with APG is lower in FY 2016 than it was in FY 2012. Figure 14 presents spending information at APG in FY 2012 and FY 2016.

¹² "Aberdeen Proving Ground," *The Baltimore Sun*, accessed June 11, 2018, <http://www.baltimoresun.com/topic/science/aberdeen-proving-ground-ORGOV000069-topic.html>.

¹³ "Major Commands," Aberdeen Proving Ground, accessed July 24, 2018, <https://www.apg.army.mil/MajorCommands>.

¹⁴ "RE: [Non-DoD Source] FW: Updated Mini-Reports and a Summary of Impacts," Email from Peter Slusar to Dean Ertwine, July 24, 2018.

¹⁵ "Aberdeen Proving Ground," *The Baltimore Sun*.

¹⁶ Personal communication with Peter Slusar.

¹⁷ Personal communication with Peter Slusar.

¹⁸ "Aberdeen Proving Ground, Maryland," *Office of Economic Adjustment*, accessed July 24, 2018, <http://www.oea.gov/project/aberdeen-proving-ground-0>.

¹⁹ "Facts," Aberdeen Proving Ground, accessed July 28, 2018, <https://www.apg.army.mil/AboutAPG/Facts>.

²⁰ "APG History," Harford County Government, accessed June 11, 2018, <http://www.harfordcountymd.gov/1225/APG-History>.

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Figure 14: APG Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$1,134,968,233	\$1,048,588,400
Employment (# of jobs) ²¹	15,780	14,806
Purchases	\$15,105,694,543	\$13,078,060,250
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$760,700,000	\$929,677,442
Employment (# of jobs)	10,862	13,078
Purchases ²²	\$1,906,246,795	\$1,266,637,539
Visitor Spending	\$43,431,531	\$27,456,000

Sources: Commerce, APG

Figure 15 below presents the economic impacts associated with APG. APG FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.²³ In FY 2012, RESI found that activity associated with APG supported a total of 58,339 jobs, \$7.0 billion in output, and \$3.4 billion in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 39,289 jobs, \$5.1 billion in output, and \$2.1 billion in employee compensation.²⁴

Figure 15: Economic Impacts of APG

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	14,806	10,125	14,358	39,289
Output	\$2,044,730,831	\$1,675,109,072	\$1,421,548,835	\$5,141,388,739
Employee Compensation ²⁵	\$1,061,759,002	\$657,390,115	\$413,230,059	\$2,132,379,177
FY 2012				
Employment	15,780	15,585	26,975	58,339
Output	\$1,622,488,066	\$2,298,357,751	\$3,127,716,743	\$7,048,562,560
Employee Compensation	\$1,134,968,235	\$975,489,748	\$1,242,440,402	\$3,352,898,385

Sources: IMPLAN, RESI

²¹ To avoid double counting, employment numbers do not include badged contractors.

²² Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

²³ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 17, accessed June 21, 2018, <http://commerce.maryland.gov/Documents/ResearchDocument/MarylandMilitaryInstallationEconomicImpactStudy2015.pdf>.

²⁴ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

²⁵ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

As seen in Figure 15, total economic impacts decreased from FY 2012 to FY 2016. This decline in economic impact followed the sequestration imposed in 2013 by the Budget Control Act of 2011, which caused several consecutive years of reduced workforce, payroll, contracts, and purchases. There has also been a significant decrease in new military construction on the APG installation since completing post-BRAC construction projects in 2012.²⁶ During this timeframe, construction expenditures fell by roughly \$18.8 million. The installation also reported approximately half the total visitors in FY 2016 as were seen in FY 2012. However, despite the reduction in impacts between FY 2012 and FY 2016, impacts between FY 2008 and FY 2016 increased, showing an overall growth trend over time.

6.0 Adelphi Laboratory Center

The Adelphi Laboratory Center (ALC) is an Army research facility located on over 200 acres land across both Montgomery County and Prince George's County in Maryland.²⁷ The primary tenant at the ALC is the U.S. Army Research Laboratory (ARL) headquarters. In addition to the headquarters in Adelphi, the ARL has additional locations across the United States, including Aberdeen Proving Ground in Maryland, White Sands Missile Range in New Mexico, and Research Triangle Park in North Carolina, as well as satellite locations in Florida, California and Texas.²⁸ The ARL at Adelphi recently launched a new Open Campus Concept, which fosters collaboration between the ARL and industry and academic partners to create breakthroughs in innovation and technology.²⁹ As the Army's premier corporate research laboratory, the ARL focuses its research on both basic and applied research in order to achieve technological breakthroughs in materiel, battlefield protection, and combat efficiency.³⁰

In addition to the ARL, the ALC manages operations at Blossom Point Research Facility in Charles County, Maryland.³¹ The Blossom Point Research Facility has been used for national security purposes since 1942, when the National Bureau of Standards, Ordnance Development Division first used the site for fuse and ordnance testing.³² Since then, operations at Blossom Point have adapted numerous times to best suit the national security needs of the United States, such as transitioning to a communications and satellite tracking facility during the Cold War.³³ Today, the Blossom Point Research facility is a 1,600-acre military range that focuses on

²⁶ Personal communication with Dean Ertwine, September 11, 2018.

²⁷ Maryland Department of the Environment, "U.S. Army Garrison Adelphi Laboratory Center," 4, accessed June 22, 2018, <http://www.mde.state.md.us/programs/Permits/AirManagementPermits/Test/US%20Army%20Garrison%20Adelphi%20Laboratory.pdf>.

²⁸ Joyce Conant, "ARL's New Campus to House 70 Researchers at University of Southern California," U.S. Army Research Laboratory, November, 3 2015, accessed December 18, 2017, <https://www.arl.army.mil/www/?article=2645>.

²⁹ Ibid.

³⁰ "Envisioning the Army of the Future, 1998-2001," U.S. Army Research Laboratory, accessed June 12, 2018, <https://www.arl.army.mil/www/default.cfm?page=491>.

³¹ JMT Technology Group, "Blossom Point Research Facility Charles County, Maryland," 18, April 10, 2012, accessed June 12, 2018, http://www.oea.gov/file/365/download?token=mkU_b0yk.

³² Personal correspondence with Mary Woolworth, August 23, 2018.

³³ JMT Technology Group, "Blossom Point Research Facility Charles County, Maryland," 11.

testing explosives, pyrotechnic devices, and electronic telemetry systems.³⁴ Through its close work with the ARL and management of the Blossom Point Research Facility, the ALC is at the forefront of military technological research, engineering, and innovation.

The ALC provided data for specific payroll, procurement, and visitor information for FY 2016. Total payroll at ALC was approximately \$196.9 million, with \$137.5 million of this total payroll going to Maryland residents; both of these figures are higher than their FY 2012 counterparts. Of the \$565.4 million in procurement and purchases, \$59.1 million was awarded in Maryland; while total procurement was higher in FY 2016 than in FY 2012, the in-state proportion shrank. Visitors to the base spent an estimated \$3.0 million in FY 2016, up from \$0.9 million in FY 2012. Figure 16 presents spending information at the ALC in FY 2012 and FY 2016.

Figure 16: Adelphi Laboratory Center Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$88,166,895	\$196,913,000
Employment (# of jobs) ³⁵	1,234	2,184
Purchases	\$109,657,926	\$565,423,759
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	n/a	\$137,473,900
Employment (# of jobs)	n/a	1,803
Purchases ³⁶	\$90,211,820	\$59,098,241
Visitor Spending	\$879,379	\$3,042,754

Sources: ALC, Commerce

Figure 17 below presents the economic impacts associated with the ALC for both FY 2012 and FY 2016. The ALC FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.³⁷ In FY 2012, RESI found that activity associated with the ALC supported a total of 3,242 jobs, \$300.7 million in output, and \$161.9 million in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 4,538 jobs, \$612.5 million in output, and \$288.1 million in employee compensation.^{38,39}

³⁴JMT Technology Group, "Blossom Point Research Facility Charles County, Maryland," 19.

³⁵ Please note that total and in-state employment totals reflect data that RESI received.

³⁶ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

³⁷ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 43.

³⁸ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

³⁹ The IMPLAN model did not include 27 permanent active duty military personnel located at ALC, as their payroll was not provided.

Figure 17: Economic Impacts of Adelphi Laboratory Center

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	2,184	490	1,864	4,538
Output	\$335,939,499	\$87,189,350	\$189,323,397	\$612,452,247
Employee Compensation ⁴⁰	\$199,386,290	\$33,723,100	\$55,036,197	\$288,145,586
FY 2012				
Employment	1,234	727	1,281	3,242
Output	\$122,495,301	\$93,733,640	\$84,506,966	\$300,735,906
Employee Compensation	\$88,415,433	\$45,133,903	\$28,352,198	\$161,901,533

Sources: IMPLAN, RESI

As seen in Figure 17, total economic impacts increased across all categories from FY 2012 to FY 2016. The increased total impacts are the result of increased on-base employment and payroll, which outweighed decreased procurement and purchases to Maryland firms.

7.0 Army Corps of Engineers in Baltimore

The U.S. Army Corps of Engineers—Baltimore District supports the construction of Army medical and technological research facilities, the remediation of former defense and civilian sites, and the supply of drinking water to Washington, DC, as well as Arlington County and Falls Church in Virginia.⁴¹ The Corps' employees have design, engineering, construction, environmental, and real estate experience that informs a wide array of projects and customers, including work for the military, civil projects, and interagency or international programs.⁴² The installation's mission is to "deliver vital public and military engineering services; partnering in peace and war to strengthen our Nation's security, energize the economy, and reduce risks from disasters."⁴³

The U.S. Army of Corps of Engineers has been around since the American Revolutionary War; the construction of Fort McHenry in 1799 was the Corps' first project in the Baltimore area.⁴⁴ Over the years, the Baltimore District has contributed to the development of roadways, railways, railroads, canals and communication networks.⁴⁵ The U.S. Army Corps of Engineers—Baltimore District not only manages a \$2.8 billion military program, in addition to leasing and supporting more than 300 Armed Forces recruiting stations and 180 housing units, but also:

- Supports 290 miles of federal channels,

⁴⁰ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

⁴¹ "History of the Baltimore District," US Army Corps of Engineers, accessed July 6, 2018, <http://www.nab.usace.army.mil/About/History/>.

⁴² Ibid.

⁴³ "Mission and Vision," US Army Corps of Engineers, accessed July 6, 2018, <http://www.nab.usace.army.mil/About/Mission-and-Vision/>.

⁴⁴ "History of the Baltimore District," US Army Corps of Engineers.

⁴⁵ Ibid.

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- Manages 148 miles of federal flood protection levees,
- Coordinates 15 reservoir projects,
- Runs 11 recreational projects enjoyed by over 15 million visitors, and
- Contributes to overseas contingency operations in Afghanistan.⁴⁶

The Army Corps of Engineers—Baltimore District provided data for employment and procurement in FY 2016. Figure 18 presents spending information at the Army Corps of Engineers—Baltimore District in FY 2012 and FY 2016. As seen below, employment fell slightly from FY 2012 to FY 2016, while purchases increased significantly.

Figure 18: Army Corps of Engineers—Baltimore District Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll ⁴⁷	\$98,262,098	\$90,090,046
Employment (# of jobs)	1,210	1,045
Purchases	\$240,321,398	\$732,435,591
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$68,384,894	n/a
Employment (# of jobs)	823	n/a
Purchases ⁴⁸	\$234,794,145	\$332,811,431
Visitor Spending	n/a	n/a

Sources: Commerce, Army Corps of Engineers—Baltimore District

Figure 19 below presents the economic impacts associated with the Army Corps of Engineers—Baltimore District. The FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.⁴⁹ In FY 2012, RESI found that activity associated with the Army Corps of Engineers—Baltimore District supported a total of 4,810 jobs, \$617.0 million in output, and \$270.7 million in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 5,596 jobs, \$797.2 million in output, and \$298.6 million in employee compensation.⁵⁰

⁴⁶ "Baltimore District Quick facts," US Army Corps of Engineers, accessed July 6, 2018, <http://www.nab.usace.army.mil/About/>.

⁴⁷ Since payroll data were not available for FY 2016, RESI utilized the average inflation-adjusted payroll per job from the FY 2012 analysis to estimate payroll for FY 2016.

⁴⁸ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

⁴⁹ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 45.

⁵⁰ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 19: Economic Impacts of Army Corps of Engineers—Baltimore District

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	1,045	2,764	1,787	5,596
Output	\$143,152,892	\$439,551,907	\$214,519,080	\$797,223,878
Employee Compensation ⁵¹	\$91,221,605	\$145,052,954	\$62,348,654	\$298,623,213
FY 2012				
Employment	1,210	1,922	1,678	4,810
Output	\$134,601,206	\$314,548,013	\$167,843,507	\$616,992,726
Employee Compensation	\$98,262,094	\$118,041,408	\$54,432,897	\$270,736,399

Sources: IMPLAN, RESI

As seen in Figure 19, the total economic impact of the Army Corps of Engineers—Baltimore District increased across all categories (employment, output, and employee compensation) from FY 2012 to FY 2016. While direct impacts fell slightly due to decreased employment at the installation, impacts associated with increased procurement and purchases to Maryland firms, namely for building construction and maintenance, were large enough for a total positive change to occur. Additionally, when FY 2016 impacts are compared to FY 2008 impacts, a clear pattern of growth over time emerges.

8.0 Coast Guard Yard

As part of the Department of Homeland Security, the Coast Guard Yard (CGY) is the Coast Guard's only shipbuilding, repair, and renovation facility and has grown in size, scope, and technical capacity over its 119-year tenure.^{52,53} The site was initially an experimental shipyard on 36 acres; however, as the needs of the U.S. military developed and changed, the site has grown as well. For example, during World War I, the facility worked on Navy units; during World War II, resources at the site expanded significantly and allowed the CGY to work on submarines in addition to its other duties.⁵⁴

Since World War II, the CGY has focused its work to exclusively meet the needs of the Coast Guard, including ship and equipment construction, repair, and maintenance; construction of oil skimmers; and the creation of a trades training program. In addition to effectively and efficiently carrying out these duties, the CGY also serves as an example for other facilities by being the first to open a Landfill Gas Renewable Energy Center, allowing the CGY to harness

⁵¹ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

⁵² "U.S. Coast Guard Yard," United States Coast Guard, accessed April 25, 2018, <https://www.dcms.uscg.mil/Our-Organization/Assistant-Commandant-for-Engineering-Logistics-CG-4-/Logistic-Centers/Surface-Forces-Logistics-Center/Coast-Guard-Yard/>.

⁵³ "The United States Coast Guard Yard 118 Years of 'Service to the Fleet'," United States Coast Guard, accessed April 25, 2018, <https://www.dcms.uscg.mil/Our-Organization/Assistant-Commandant-for-Engineering-Logistics-CG-4-/Logistic-Centers/Surface-Forces-Logistics-Center/Coast-Guard-Yard/The-Yard-History/>.

⁵⁴ Ibid.

methane from a Baltimore City landfill and convert it into electricity and steam to power the CGY.⁵⁵

The CGY provided data for specific payroll and procurement for FY 2016. Since the CGY receives few visitors, the CGY did not provide visitor information in FY 2016, and visitor spending impacts were not included in the analysis. The installation directly employed 1,878 personnel, comprised of 655 permanent active duty military personnel, 135 reserve personnel, and 1,088 civilian personnel. Procurement and purchases totaled nearly \$50.0 million in FY 2016, spanning across categories such as building construction and maintenance, utilities, medical expenses, contracts, purchases, education, and other procurements. Compared to FY 2012, the CGY employed 187 more personnel and engaged in \$15.3 million more in purchases. Figure 20 presents spending totals at the CGY. Please note that an in-state breakdown of data is not available for the CGY in FY 2016; for analysis purposes, RESI utilized the in-state to total ratio from FY 2012, as provided by Commerce, to develop conservative estimates for this report.⁵⁶

Figure 20: Coast Guard Yard Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$103,331,667	\$121,849,130
Employment (# of jobs)	1,691	1,878
Purchases	\$34,675,596	\$49,966,126
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$75,159,788	n/a
Employment (# of jobs)	1,249	n/a
Purchases ⁵⁷	\$34,662,596	n/a
Visitor Spending	\$855,784	n/a

Sources: Coast Guard Yard, Commerce

Figure 21 below presents the economic impacts associated with the CGY. The CGY's FY 2012 data were published in the 2015 *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.⁵⁸ In FY 2012, RESI found that activity associated with payroll, procurement, and visitor spending at the CGY supported a total of 3,066 jobs, \$298.9 million in output, and \$147.4 million in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 3,396 jobs, \$469.4 million in output, and \$170.9 million in employee compensation.⁵⁹

⁵⁵ "The United States Coast Guard Yard 118 Years of 'Service to the Fleet'," United States Coast Guard.

⁵⁶ Thomas Evans, "Fwd: EIS Mini Reports," personal communication to Julie Knight, May 7, 2018.

⁵⁷ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

⁵⁸ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 31.

⁵⁹ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 21: Economic Impacts of Coast Guard Yard

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	1,878	290	1,228	3,396
Output	\$307,966,830	\$49,817,996	\$111,638,988	\$469,423,814
Employee Compensation ⁶⁰	\$123,379,594	\$15,092,612	\$32,453,820	\$170,926,025
FY 2012				
Employment	1,691	279	1,096	3,066
Output	\$169,287,260	\$44,135,053	\$85,499,212	\$298,921,525
Employee Compensation	\$103,421,493	\$16,233,374	\$27,742,603	\$147,397,470

Sources: IMPLAN, RESI

As seen in Figure 21, economic impacts from the CGY increased across all three categories from FY 2012 to FY 2016. These increased expenditures were notably seen in active duty and civilian payroll and contracts and purchases to Maryland firms.

9.0 Fort Detrick

Located in Frederick, Fort Detrick is the home of multi-agency medical research led by the United States Army Medical Research and Materiel Command (USAMRMC). USAMRMC and multiple other government agencies partner on medical advancements designed for both Service Members and the public. The Installation Management Command (IMCOM) is represented by the United States Army Garrison⁶¹ that is responsible for managing the installation, providing key services, quality of life and environmental stewardship. Fort Detrick is the host of multiple other activities on the installation that support the nation, including support for global communications, medical logistics, support to agriculture, as well as a partnership with the National Cancer Institute campus, collocated with Fort Detrick.

Reorganized in 1994, the U.S. Medical Research and Materiel Command builds upon a 200-year legacy of medical and public health work and has been located at Fort Detrick since 1978.⁶² The installation supports five cabinet-level departments (Defense, Veterans Affairs, Agriculture, Homeland Security, and Health and Human Services) as well as the four branches of the military.⁶³ Fort Detrick is the largest employer in Frederick County and is consistently praised for its quality of life and operations programs.⁶⁴

Fort Detrick provided data for payroll, procurement, and visitor information for FY 2016. In FY 2016, total payroll at Fort Detrick was nearly \$1.1 billion, up from \$842.0 million in FY 2012.

⁶⁰ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

⁶¹ "Fort Detrick, Maryland," U.S. Army, accessed May 11, 2018, <http://www.detrack.army.mil/>.

⁶² "Command History," U.S. Army Medical Research and Materiel Command, accessed May 11, 2018, <http://mrmc.amedd.army.mil/index.cfm?pageid=about.history>.

⁶³ Ibid.

⁶⁴ Ibid.

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Total employment was 8,641 on-base personnel, comprised of 1,349 active duty military, 286 reserve personnel, 2,450 rotational personnel, 430 students, and 4,126 civilians.⁶⁵ Of the \$2.0 billion in total purchases, nearly \$1.5 billion were procured in-state.

Please note that these purchases figures include an estimated \$957 million in contracts for agencies at Fort Detrick that chose not to disclose data for this analysis. Furthermore, improvements in reporting for purchases and contracts over the time period, as well as normalization of spending to pre-conflict levels, and completion of major military construction projects, all contribute to variations in spending data. Figure 22 presents spending information at Fort Detrick in FY 2012 and FY 2016.

Figure 22: Fort Detrick Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$842,023,092	\$1,079,042,656
Employment (# of jobs)	7,566	8,641
Purchases	\$3,015,233,519	\$1,955,559,995
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$841,723,092	\$931,365,396
Employment (# of jobs)	6,871	7,686
Purchases ⁶⁶	\$2,306,001,941	\$1,492,217,022
Visitor Spending	\$44,576,103	\$65,287,794

Sources: Commerce, Fort Detrick

Figure 23 below presents the economic impacts associated with Fort Detrick. Fort Detrick's FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.⁶⁷ In FY 2012, RESI found that activity associated with Fort Detrick supported a total of 36,782 jobs, \$7.0 billion in output, and \$2.7 billion in employee compensation. In FY 2016, activity associated with payroll, procurement, and visitor spending supported a total of 29,700 jobs, \$6.5 billion in output, and \$2.3 billion in employee compensation.⁶⁸

⁶⁵ Please note that contractors are not included in the civilian employee count to avoid double counting with procurement.

⁶⁶ Purchases do not include commissary and exchange sales, or lodgings in the total to avoid double counting.

⁶⁷ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 20.

⁶⁸ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 23: Economic Impacts of Fort Detrick

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	8,641	11,021	10,038	29,700
Output	\$2,667,612,687	\$2,312,859,188	\$1,565,153,304	\$6,545,625,179
Employee Compensation ⁶⁹	\$1,092,595,773	\$799,347,619	\$454,974,066	\$2,346,917,459
FY 2012				
Employment	7,566	15,844	13,371	36,782
Output	\$2,127,218,489	\$3,081,804,186	\$1,750,179,465	\$6,959,202,140
Employee Compensation	\$842,023,092	\$1,289,435,817	\$532,542,244	\$2,664,001,153

Sources: IMPLAN, RESI

As seen in Figure 23, direct impacts of Fort Detrick—a result of on-base payroll—increased from FY 2012 to FY 2016. However, due to a decrease in in-state procurement and purchases, total impacts fell. Procurement and purchases appeared to decrease primarily for the categories of building construction and maintenance (a decrease of \$497.1 million) and contracts and purchases (a drop of \$557 million) between FY 2012 and FY 2016. Some variation in spending is also attributable to improved reporting practices at the installation. During the FY 2012 reporting period, Fort Detrick benefitted from a number of large construction activities and the reductions in the current analysis, while lower than FY 2012, actually reflect a slightly higher level than reported for FY 2008. In FY 2008, Fort Detrick had total employment impacts of 13,395.⁷⁰ Although total impacts at the installation have decreased between FY 2012 and FY 2016, total employment impacts at the installation have more than doubled since FY 2008, due largely to benefits following the most recent round of BRAC (Base Realignment and Closure).

10.0 Fort Meade

Fort Meade is located in Anne Arundel County, Maryland, between Baltimore and Washington, DC.⁷¹ First established as an Army installation in 1917, Fort Meade served as a training site for soldiers during both world wars.⁷² In the 1950s, Fort Meade became the site of the Second U.S. Army headquarters; the First U.S. Army merged with the Second U.S. Army in the 1960s. The consolidated headquarters, which oversaw administration of Army installations across 15 states, was also located at Fort Meade.⁷³

⁶⁹ In the IMPLAN model, “employee compensation” impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

⁷⁰ Daraius Irani and Jessica Grimm, “Maryland Military Installation Economic Impact Study,” 20.

⁷¹ “About Fort Meade,” U.S. Army, modified April 11, 2018, accessed August 3, 2018, <http://www.ftmeade.army.mil/pages/about/about.html>.

⁷² “Fort Meade History,” U.S. Army, modified April 3, 2017, accessed August 3, 2018, <http://www.ftmeade.army.mil/museum/history/history.html>.

⁷³ Ibid.

Currently, nearly 120 organizations from all four branches of the military, as well as federal agencies, rely on services at Fort Meade.⁷⁴ Units at Fort Meade include the United States Cyber Command, the National Security Agency (NSA), the Defense Information Security Agency, the Defense Security Service, the Army Intelligence and Security Command, the Marine Forces Cyber Command, the Navy 10th Fleet Cyber Command, the Navy Cryptologic Warfare Group 6, the 70th Intelligence, Surveillance, and Reconnaissance Wing, the Asymmetric Warfare Group, the Defense Media Activity, and the Defense Information School.⁷⁵ The installation has 1,673 buildings, totaling 11.1 million square feet across 5,067 acres.⁷⁶ In addition to meeting the needs of the U.S. military and federal government, the installation provides resources for families of service members and engages in community partnerships.⁷⁷

For this analysis, RESI used employment data from the Army Stationing and Installation Plan (ASIP) provided by Fort Meade for FY 2016.⁷⁸ To calculate payroll, RESI used data provided by Fort Meade for FY 2016. For this analysis, RESI used procurement data provided by seven tenants for FY 2017, visitor data from two tenants and the Fort Meade Garrison, and publically available data.

In total, the installation directly employed 55,568 military, civilian, and badged contractor personnel, with a payroll of approximately \$3.6 billion. Direct employment includes badged contractors for Fort Meade because the installation is unable to publically release contractor data.⁷⁹ Procurement and purchases totaled nearly \$12.0 billion, with \$7.4 billion of that total spent in the state. Employment, payroll, and visitor spending increased between FY 2012 and FY 2016/2017, while purchases decreased. Figure 24 presents spending information at Fort Meade in FY 2012 and FY 2016/2017 as utilized in this analysis.⁸⁰

Payroll, employment, and visitor spending figures for FY 2012 have been revised from the 2015 report to maintain consistent methodology with the current report. For the 2015 report, direct employment was reported by different tenants on Fort Meade. To reduce tenant burden and the risk of double counting employment and payroll, Fort Meade changed its reporting process for FY 2016 to rely on ASIP data. To uniformly compare estimates across reporting periods, RESI updated the FY 2012 results for this report using ASIP data provided by the installation for FY 2012. Estimates of Fort Meade's payroll in both FY 2012 and FY 2016 are likely conservative because they may not fully capture NSA payroll. NSA employment and payroll figures are not released due to national security concerns.

⁷⁴ "About Fort Meade," U.S. Army.

⁷⁵ Communication with Christopher Thiel.

⁷⁶ "Communication with Fort Meade PAIO.

⁷⁷ "Meade 101," Fort Meade Garrison, 8.

⁷⁸ Per Fort Meade, NSA employment is captured within ASIP.

⁷⁹ Indirect effects have been adjusted to account for this reporting practice.

⁸⁰ Please note that to maintain conservative estimates, employment figures do not include off-site workers who report to Fort Meade.

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Figure 24: Fort Meade Facility Spending, FY 2012 and FY 2016/2017

Facility Spending	FY 2012	FY 2016/2017
Total Spending		
Payroll	\$3,232,403,903	\$3,601,173,178
Employment (# of jobs)	51,609	55,568
Purchases	\$14,128,150,877	\$11,974,446,738
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	n/a	n/a
Employment (# of jobs)	n/a	n/a
Purchases ⁸¹	\$7,490,105,509	\$7,414,429,435
Visitor Spending	\$3,438,578	\$7,559,981

Sources: Commerce, Fort Meade

Figure 25 below presents the economic impacts associated with Fort Meade. RESI found that in FY 2012, activity associated with Fort Meade supported a total of 153,320 jobs, \$20.7 billion in output, and \$8.6 billion in employee compensation. In FY 2016/2017, activity associated with payroll, procurement, and visitor spending supported a total of 153,310 jobs, \$21.6 billion in output, and \$9.0 billion in employee compensation.

Please note that direct employment for FY 2012 and FY 2016 includes badged contractors for Fort Meade because the installation is unable to publically release contractor data. Indirect effects have been adjusted to account for this reporting technique. Furthermore, estimates of Fort Meade's impacts in both FY 2012 and FY 2016 are likely conservative because they may not fully capture NSA payroll. NSA employment and payroll figures are not released due to national security concerns.

Figure 25: Economic Impacts of Fort Meade

Impact	Direct	Indirect	Induced	Total
FY 2016/2017				
Employment	55,568	41,054	56,688	153,310
Output	\$7,847,220,198	\$7,750,514,414	\$6,037,596,787	\$21,635,331,400
Employee Compensation ⁸²	\$3,636,058,748	\$3,586,998,830	\$1,755,035,535	\$8,978,093,114
FY 2012				
Employment	51,609	46,484	55,227	153,320
Output	\$6,890,533,990	\$8,263,366,934	\$5,565,070,562	\$20,718,971,486
Employee Compensation	\$3,379,378,909	\$3,435,669,312	\$1,730,571,424	\$8,545,619,645

Sources: IMPLAN, RESI

⁸¹ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

⁸² In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

As seen in Figure 25, output and employee compensation increased between FY 2012 and FY 2016/2017. Total employment remained flat between reporting periods, decreasing by ten total jobs. Although total employment fell by 0.007 percent, this obscures the fact that direct employment at Fort Meade increased by approximately 8 percent between FY 2012 and FY 2016/2017. Economic gains from the increase in direct on-base employment are countered by decreased procurement and purchases. This decrease is reflected in the indirect impacts shown in Figure 25; indirect employment decreased by 12 percent between FY 2012 and FY 2016/2017. In FY 2016/2017, procurement and purchases were skewed more heavily towards industries with higher wages, resulting in increased employee compensation despite the decrease in indirect employment.

11.0 Joint Base Andrews

Joint Base Andrews is located in Prince George's County, Maryland, near Washington, DC.⁸³ The site was designated as a military airfield in 1942 by President Franklin D. Roosevelt, with the first permanent unit arriving in April of 1943.⁸⁴ In 1945 the site was named in honor of a founder of the Air Force, Lieutenant General Frank M. Andrews, subsequently becoming Andrews Air Force Base in 1947 once the Air Force became a separate service of the military.⁸⁵ Andrews has been the home of Air Force One since 1962.⁸⁶

In 2009, Andrews Air Force Base and the Naval Air Facility Washington merged to form Joint Base Andrews Naval Air Facility Washington, or Joint Base Andrews.⁸⁷ Units include:

- The 11th Wing, Joint Base Andrews' host wing;
- The Air Force District of Washington, parent command to the 11th Wing and other groups;
- The Honor Guard;
- The Naval Air Facility Washington;
- The U.S. Air Force Band;
- The 89th Airlift Wing;
- The U.S. Air Force Chaplaincy; and
- The 113th Wing D.C. Air National Guard.⁸⁸

Joint Base Andrews provided an annual report for analysis. RESI utilized payroll expenditures and local expenditures from the documentation to estimate spending inputs into the IMPLAN model. Where available, estimates were based on proportions from the FY 2013 analysis.⁸⁹

⁸³ "Welcome to Joint Base Andrews," Joint Base Andrews, accessed August 20, 2018, <https://www.jba.af.mil/About-Us/Newcomers/>.

⁸⁴ "Joint Base Andrews History," Joint Base Andrews, accessed August 20, 2018, <https://www.jba.af.mil/About-Us/Fact-Sheets/Display/Article/336384/joint-base-andrews-history/>.

⁸⁵ Ibid.

⁸⁶ Ibid.

⁸⁷ "Joint Base Andrews History," Joint Base Andrews.

⁸⁸ "Units," Joint Base Andrews, accessed August 20, 2018, <https://www.jba.af.mil/Units/>.

⁸⁹ For the previous analysis, Joint Base Andrews provided data for FY 2013.

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Figure 26 presents spending information at Joint Base Andrews in FY 2013 and FY 2016.

Figure 26: Joint Base Andrews Facility Spending, FY 2013 and FY 2016

Facility Spending	FY 2013	FY 2016
Total Spending		
Payroll	\$874,650,554	\$1,032,430,000
Employment (# of jobs)	17,546	15,506
Purchases	\$96,088,578	n/a
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$767,823,005	n/a
Employment (# of jobs)	10,579	n/a
Purchases ⁹⁰	\$64,065,049	\$255,190,000
Visitor Spending	n/a	n/a

Sources: Commerce, Joint Base Andrews

Figure 27 below presents the economic impacts associated with Joint Base Andrews. The Joint Base Andrews FY 2013 data were published in the 2015 report completed by RESI.⁹¹ In FY 2013, RESI found that activity associated with Joint Base Andrews supported a total of 26,955 jobs, \$2.3 billion in output, and \$1.1 billion in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 26,709 jobs, \$4.6 billion in output, and \$1.5 billion in employee compensation.⁹²

Figure 27: Economic Impacts of Joint Base Andrews

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	15,506	2,216	8,987	26,709
Output	\$3,252,413,851	\$353,183,273	\$956,741,654	\$4,562,338,779
Employee Compensation ⁹³	\$1,045,397,647	\$135,676,471	\$278,125,528	\$1,459,199,646
FY 2013				
Employment	17,546	479	8,930	26,955
Output	\$1,624,153,235	\$80,393,890	\$629,730,413	\$2,334,277,538
Employee Compensation	\$874,650,596	\$29,104,444	\$204,179,642	\$1,107,934,682

Sources: IMPLAN, RESI

⁹⁰ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

⁹¹ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 14.

⁹² To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

⁹³ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

As seen in Figure 27, total output and total employee compensation increased from FY 2013 to FY 2016. Total employment impacts fell slightly due to lower reported numbers of active duty military and civilian on-base employment. The increase in purchases and procurement from Maryland firms increased, leading to the large rise in indirect impacts. Expenditure gains were largest for contracts and purchases (an increase of \$160.7 million) and building construction and maintenance (an increase of \$44.7 million). As compared to FY 2008, impacts in FY 2016 have increased steadily, showing an overall pattern of growth.

12.0 Maryland Military Department—MD Army and Air National Guard

It is the mission of the Maryland Military Department—MD Army and Air National Guard to “stand ready to respond to and support any requirements our state and national have with a highly qualified team of soldiers, airmen, civilians, and volunteer forces.”⁹⁴ Today, the total workforce of the Maryland Military Department—including personnel employed by the Army National Guard, the Air National Guard, Maryland Emergency Management Agency, Maryland Defense Force, and State personnel employed by the Military Department—is approximately 6,600.⁹⁵

The Maryland Military Department—MD Army and Air National Guard has several facilities throughout the state, including 238 buildings totaling over 2.7 million square feet of facility space. There are also numerous current and future construction projects for new facilities, including:

- Havre de Grace Readiness Center,
- Easton Readiness Center,
- MDANG Network Warfare Center, and
- Freedom Readiness Center (Sykesville).⁹⁶

Additionally, personnel can be employed to assist with major emergencies (both local and out of state), and provide general support to the Military Department. To support homeland readiness, the Maryland National Guard provides 11 core capabilities:

- Aviation/Airlift;
- Chemical, Biological, Radiological, and Nuclear (CBRN) response;
- Command and Control;
- Communications;
- Cyber Security;
- Engineering;
- Logistics;
- Maintenance;

⁹⁴ “2017 Annual Report,” Maryland Military Department, accessed July 27, 2018, 1, http://military.maryland.gov/NG/Documents/annual%20reports/2017_Annual_Report.pdf.

⁹⁵ Ibid., 6.

⁹⁶ Ibid., 8.

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- Medical;
- Security; and
- Transportation.⁹⁷

The MD Military Department provided payroll and procurement data for FY 2016.^{98,99} Total payroll increased from \$174.9 million to \$189.2 million between FY 2012 and FY 2016, while total employment decreased from 7,061 personnel to 6,640 personnel. Total purchases decreased from \$301.9 million to \$108.3 million, while purchases from in-state entities increased from \$37.6 million to \$96.1 million. Figure 28 presents spending information at the MD National Guard in FY 2012 and FY 2016.

Figure 28: MD Army & Air National Guard Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$174,850,000	\$189,217,790
Employment (# of jobs) ¹⁰⁰	7,061	6,640
Purchases	\$301,850,000	\$108,300,000
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	n/a	\$185,432,000
Employment (# of jobs)	n/a	6,508
Purchases ¹⁰¹	\$37,556,000	\$96,081,243
Visitor Spending	n/a	n/a

Sources: Commerce, MD Military Department

Figure 29 below presents the economic impacts associated with the MD Military Department. The FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.¹⁰² In FY 2012, RESI found that activity associated with the MD National Guard supported a total of 3,509 jobs, \$516.0 million in output, and \$231.9 million in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 3,929 jobs, \$1.0 billion in output, and \$291.3 million in employee compensation.¹⁰³

⁹⁷ "2017 Annual Report," Maryland Military Department, 4.

⁹⁸ Due to data limitations in FY 2016, RESI utilized detailed data ratios from the FY 2012 report to supplement this analysis.

⁹⁹ Procurement figures for FY 2016 are limited to the Army National Guard and Air National Guard.

¹⁰⁰ Both FY 2012 and FY 2016 include nearly 5,000 Reserve members who are likely to have other full- or part-time employment. These reserve employees are excluded from the FY 2016 economic impact analysis to maintain consistency with the FY 2012 analysis.

¹⁰¹ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹⁰² Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 33.

¹⁰³ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

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Figure 29: Economic Impacts of the Maryland Military Department—MD Army & Air National Guard

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment ¹⁰⁴	1,872	893	1,164	3,929
Output	\$713,610,092	\$132,997,840	\$195,748,425	\$1,042,356,357
Employee Compensation ¹⁰⁵	\$191,594,425	\$42,760,242	\$56,901,098	\$291,255,766
FY 2012				
Employment	2,098	364	1,047	3,509
Output	\$347,757,250	\$37,556,517	\$130,649,287	\$515,963,054
Employee Compensation	\$174,849,992	\$14,202,308	\$42,826,998	\$231,879,298

Sources: IMPLAN, RESI

As seen in Figure 29, total economic impacts from the Maryland Military department increased across all three categories from FY 2012 to FY 2016. Despite a decrease of 226 workers employed on base, the sizable rise in purchases and procurement from Maryland firms (an increase of over \$57.5 million) as well as a smaller increase in payroll to these employees (an additional \$14.4 million in payroll), helped to make the overall change in impact positive.

13.0 National Maritime Intelligence Center

Located in Suitland, the National Maritime Intelligence Center (NMIC) houses the National Maritime Intelligence-Integration Office (NMIO), with tenant commands including the Office of Naval Intelligence, the U.S. Coast Guard Intelligence Coordination Center, and the NMIO interagency staff.¹⁰⁶ These tenants provide information about maritime matters to the intelligence community.^{107,108} Their mission is to “advance maritime intelligence integration, information sharing, and domain awareness to foster unity of effort for decision advantage that protects the United States, its allies, and partners against threats in or emanating from the global maritime domain.”¹⁰⁹ To carry out this mission, there are four maritime priorities, which include developing the global maritime community of interest (GMCOI), improving information

¹⁰⁴ To provide a conservative estimate—the impact analysis excludes the nearly 5,000 Reserve members who are likely to have other full or part-time employment.

¹⁰⁵ In the IMPLAN model, “employee compensation” impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

¹⁰⁶ “Location,” National Maritime Intelligence-Integration Office (NMIO), accessed August 15, 2018, <http://nmio.ise.gov/Visiting-NMIO/NMIC/>.

¹⁰⁷ “National Maritime Intelligence-Integration Office (NMIO),” National Maritime Intelligence-Integration Office, accessed April 27, 2018, <http://nmio.ise.gov/>.

¹⁰⁸ “Location,” National Maritime Intelligence-Integration Office (NMIO).

¹⁰⁹ “Our Mission,” National Maritime Intelligence-Integration Office, accessed April 27, 2018, <http://nmio.ise.gov/About-NMIO/Mission-Priorities/>.

sharing and intelligence integration, advocating GMCOI collection and analytic priorities, and integrating science and technology.¹¹⁰

The NMIC provided data on specific payroll and procurement figures for FY 2016. Since the NMIC receives few visitors, visitor spending impacts were not included in the analysis. The installation directly employed 2,985 personnel, comprised of 800 permanent active duty military personnel, 600 reserve personnel, five rotational personnel, and 1,580 civilian personnel. Procurement and purchases totaled approximately \$14.6 million, approximately half of which was spent in the state, including categories such as building construction and maintenance, utilities, and purchases.

Figure 30 presents spending information at the NMIC in FY 2012 and FY 2016. Please note that an in-state breakdown is only partially available for payroll and employment at the NMIC in FY 2016; as such, RESI utilized the proportion of in-state to total payroll and employment from the FY 2012 report (approximately 84 percent) to estimate in-state FY 2016 figures.

Figure 30: NMIC Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll ¹¹¹	\$199,234,961	\$276,813,598
Employment (# of jobs)	1,890	2,985
Purchases	\$82,578,817	\$14,558,484
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$167,357,367	\$232,523,422
Employment (# of jobs)	1,588	2,508
Purchases ¹¹²	\$69,401,197	\$7,406,577
Visitor Spending	n/a	n/a

Sources: Commerce, NMIC

Figure 31 below presents the economic impacts associated with the NMIC. The NMIC's FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.¹¹³ In FY 2012, RESI found that activity associated with payroll and procurement at the NMIC supported a total of 4,027 jobs, \$854.9 million in output, and \$302.7 million in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 4,976 jobs, \$851.9 million in output, and \$347.5 million in employee compensation.¹¹⁴

¹¹⁰ "Our Mission," National Maritime Intelligence-Integration Office.

¹¹¹ Payroll data were not available for the NMIC. In consultation with the client, RESI utilized the average salary for military employees at the NSA Bethesda facility per client request to estimate these payroll expenditures.

¹¹² Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹¹³ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 25.

¹¹⁴ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 31: Economic Impacts of NMIC

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	2,985	33	1,959	4,976
Output	\$616,840,291	\$10,780,949	\$224,280,151	\$851,901,391
Employee Compensation ¹¹⁵	\$280,290,464	\$1,959,355	\$65,201,095	\$347,450,914
FY 2012				
Employment	1,890	728	1,409	4,027
Output	\$578,370,032	\$92,095,010	\$184,443,209	\$854,908,251
Employee Compensation	\$199,234,967	\$47,302,535	\$56,117,261	\$302,654,763

Sources: IMPLAN, RESI

As seen in Figure 31, total employment and employee compensation impacts rose from FY 2012 to FY 2016. On-base active duty and civilian employment and payroll increased. Indirect impacts fell due to a reported reduction in the contracts and purchases category of procurement. However, all impacts have increased from FY 2008, indicating an overall pattern of growth.

14.0 Naval Air Station Patuxent River

Naval Air Station Patuxent River (Pax River) was commissioned on April 1, 1943 to meet the Navy's need for a centralized air testing facility. Farmlands in Cedar Point, Maryland were chosen as the location for the Naval Air Station at Pax River, and the facility's development was expedited due to the involvement of the United States in World War II.¹¹⁶ Between the summer of 1943 and the end of 1944, the facility established divisions for flight, radio, service, electronics, and tactical testing as well as aircraft armament, and experimental and development squadrons.¹¹⁷ Hundreds of pilots travelled to the Pax River facility during World War II to test American planes built for combat, and also to assess the capabilities and vulnerabilities of captured enemy airplanes from Germany and Japan.¹¹⁸ Pax River also played a prominent role in the development of new and refined capabilities during the Korean War and Vietnam War during the 1950s and 1960s.¹¹⁹ Since the founding of the Naval Air Station at Pax River, the facility has been constantly evolving to adapt to the needs of present and future missions.

Today, Pax River is a 14,500-acre complex and a nationally renowned Center of Excellence for Naval Aviation. Pax River is now the headquarters for both the Naval Air Systems Command

¹¹⁵ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

¹¹⁶ "History of the Naval Air Station," Commander Naval Installations Command, accessed June 11, 2018, https://cnic.navy.mil/regions/ndw/installations/nas_patuxent_river/about/history.html.

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

(NAVAIR) and the Naval Air Warfare Center Aircraft Division (NAWCAD).¹²⁰ The facilities at Pax River are also used by foreign governments, universities, and private industries to research, develop, test, and evaluate naval aircrafts and support systems.¹²¹ By applying expertise in the fields of naval aviation research and engineering, the Naval Air Station at Pax River provides the highest-quality support to all missions and tenants.

Pax River provided data on specific payroll, procurement, and visitor information for FY 2016. Please note that only partial in-state breakdowns are available for FY 2016 data. Total payroll increased from \$1.0 billion to \$1.9 billion from FY 2012 to FY 2016, while total employment increased from 11,724 personnel to 21,858 personnel. Total purchases increased from \$27.4 billion to \$32.1 billion, while purchases from in-state entities remained largely constant at approximately \$1.7 billion. Figure 32 presents spending information at Pax River in FY 2012 and FY 2016.

Figure 32: Pax River Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$1,006,004,573	\$1,948,577,788
Employment (# of jobs)	11,724	21,858
Purchases	\$27,424,197,941	\$32,069,913,806
Visitor Spending	\$1,355,497	n/a
In-State Spending		
Payroll	\$955,000,000	n/a
Employment (# of jobs)	10,899	8,935
Purchases ¹²²	\$1,699,172,357	\$1,670,025,162
Visitor Spending	N/A	\$2,960,100

Sources: Commerce, Pax River

Figure 33 below presents the economic impacts associated with Pax River. The Pax River FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* completed by RESI 2015.¹²³ In FY 2012, RESI found that activity associated with Pax River supported a total of 36,956 jobs, \$7.5 billion in output, and \$2.4 billion in employee compensation. In FY 2016, activity associated with payroll, procurement, and visitor spending supported a total of 61,132 jobs, \$8.7 billion in output, and \$3.6 billion in employee compensation.¹²⁴

¹²⁰ "About," Commander Naval Installations Command, June 11, 2018, https://cnic.navy.mil/regions/ndw/installations/nas_patuxent_river/about.html.

¹²¹ Ibid.

¹²² Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹²³ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 29.

¹²⁴ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 33: Economic Impacts of Pax River

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	21,858	18,244	21,029	61,132
Output	\$3,835,617,019	\$2,453,964,097	\$2,407,408,024	\$8,696,989,140
Employee Compensation ¹²⁵	\$1,973,052,541	\$937,475,806	\$699,809,114	\$3,610,337,461
FY 2012				
Employment	11,724	13,708	11,524	36,956
Output	\$3,795,718,487	\$2,171,085,680	\$1,508,785,425	\$7,475,589,592
Employee Compensation	\$1,006,004,573	\$945,397,394	\$459,065,951	\$2,410,467,918

Sources: IMPLAN, RESI

As seen in Figure 33, total economic impacts increased across all categories from FY 2012 to FY 2016. Reported civilian employment and payroll increased by 9,739 workers and \$773.8 million respectively, leading to increased direct impacts.

15.0 Naval Research Laboratory Chesapeake Bay

The Naval Research Laboratory (NRL) is the Navy's first modern research institution.¹²⁶ While plans for the facility began in 1916, construction was interrupted until 1920 due to war-related delays.¹²⁷ Since 1992, the NRL has been operating in its current form, after the Navy Research, Development, Test and Evaluation Engineering facilities and Fleet Support facilities merged into one entity.¹²⁸ It is the mission of NRL to conduct "a broadly based multidisciplinary program of scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems and ocean, atmospheric, and space sciences and related technologies."¹²⁹

Occupying a 168-acre site near the Chesapeake Bay, the Chesapeake Bay Detachment of the NRL "provides facilities and support services for research in radar, electronic warfare, optical devices, materials, communications, and fire research."¹³⁰ Due to its location, the installation is able to work in conjunction with the Tilghman Island site—16 kilometers away on the other side of the bay—to perform unique experiments.¹³¹ In addition to research—such as in the areas of "radar antenna properties, testing of radar remote sensing concepts, use of radar to sensor

¹²⁵ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

¹²⁶ U.S. Naval Research Lab, "History," accessed June 20, 2018, <http://www.nrl.navy.mil/about-nrl/history/>

¹²⁷ U.S. Naval Research Lab, "Thomas Edison's Vision," accessed June 22, 2018, <https://www.nrl.navy.mil/about-nrl/history/edison/>.

¹²⁸ U.S. Naval Research Lab, "Mission," accessed June 20, 2018, <http://www.nrl.navy.mil/about-nrl/mission/>.

¹²⁹ Ibid.

¹³⁰ U.S. Naval Research Lab, "Chesapeake Bay Detachment," accessed June 20, 2018, <https://www.nrl.navy.mil/field-sites/chesapeake-bay-det./>.

¹³¹ Ibid.

ocean waves, and laser propagation”—the installation “hosts facilities of the Navy Technology Center for Safety and Survivability, which conducts fire research on simulated carrier, surface and submarine platforms.”¹³²

The NRL provided payroll, procurement, and visitor information data for FY 2016. Total NRL payroll approached \$1.4 million, with nearly \$1.2 million of this total payroll going to Maryland residents. Of the more than \$5.7 million in procurement and purchases, almost \$2.8 million was awarded in Maryland. Visitors to the base spent an estimated \$0.7 million in FY 2016. Generally speaking, spending was lower in FY 2016 than it was in FY 2012. Figure 34 presents spending information at the NRL in FY 2012 and FY 2016.

Figure 34: NRL—Chesapeake Bay Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$1,563,200	\$1,369,100
Employment (# of jobs)	15	12
Purchases	\$10,624,200	\$5,723,000
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$1,494,000	\$1,177,100
Employment (# of jobs)	14	11
Purchases ¹³³	\$4,317,000	\$2,757,900
Visitor Spending	\$675,890	\$657,228

Sources: Commerce, NRL Chesapeake

Figure 35 below presents the economic impacts associated with the NRL. The NRL FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.¹³⁴ In FY 2012, RESI found that activity associated with the NRL supported a total of 83 jobs, \$11.9 million in output, and \$5.1 million in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 57 jobs, \$9.7 million in output, and \$3.9 million in employee compensation.¹³⁵

¹³² U.S. Naval Research Lab, “Chesapeake Bay Detachment.”

¹³³ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹³⁴ Daraius Irani and Jessica Grimm, “Maryland Military Installation Economic Impact Study,” 35.

¹³⁵ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 35: Economic Impacts of NRL—Chesapeake Bay

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	12	25	20	57
Output	\$2,129,258	\$4,931,445	\$2,634,437	\$9,695,139
Employee Compensation ¹³⁶	\$1,386,195	\$1,768,128	\$765,791	\$3,920,114
FY 2012				
Employment	15	41	27	83
Output	\$2,116,438	\$6,585,960	\$3,154,631	\$11,857,029
Employee Compensation	\$1,563,200	\$2,545,914	\$1,025,132	\$5,134,246

Sources: IMPLAN, RESI

As seen in Figure 35, the economic impact of NRL Chesapeake Bay fell across all categories from FY 2012 to FY 2016. This is attributable to reductions in reported civilian personnel, building construction and maintenance, and total visitors.

16.0 Naval Support Activity Annapolis

The Naval Support Activity (NSA) Annapolis is located on the opposite side of the Severn River from the U.S. Naval Academy.¹³⁷ This facility provides operating support to the Chesapeake Bay Detachment in Randle Cliff, Maryland; the Navy Operational Support Center in Baltimore, Maryland; the North Severn complex; and the United States Naval Academy.¹³⁸ Also falling under NSA Annapolis are the following:

- The Commissary,
- The Fleet and Family Support Center,
- Military housing (including Bachelor Enlisted Quarters), and
- The Navy Exchange.¹³⁹

Naval support has been provided to midshipmen since 1851 when Annapolis “became the home of naval aviation, having both the first naval air station and the first flight from a naval air station to add to its illustrious history.”¹⁴⁰ In 2006, NSA Annapolis was established, streamlining “operations to better support the U.S. Naval Academy, eliminating redundancy and providing a

¹³⁶ In the IMPLAN model, “employee compensation” impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

¹³⁷ “Installation Information,” Commander, Navy Installations Command, accessed July 23, 2018, http://www.cnic.navy.mil/regions/ndw/installations/nsa_annapolis.html.

¹³⁸ Ibid.

¹³⁹ “History,” Commander, Navy Installation Command, accessed July 23, 2018, http://www.cnic.navy.mil/regions/ndw/installations/nsa_annapolis/about/history.html.

¹⁴⁰ Ibid.

more efficient and responsive organization for the training of Midshipmen and the support of Academy faculty, staff, and family members.”¹⁴¹

NSA Annapolis provided data on payroll, procurement, and visitor information for FY 2016. Please note that visitor spending is excluded from the analysis due to the facility's integration with the U.S. Naval Academy. Total payroll decreased from \$509.6 million to \$385.5 million from FY 2012 to FY 2016, while total employment increased from 7,765 personnel to 8,197 personnel, which includes 4,443 students. Total purchases decreased from \$206.1 million to \$100.8 million, while purchases from in-state entities also decreased from \$92.4 million to \$51.4 million. Figure 36 presents spending information at NSA Annapolis in FY 2012 and FY 2016.

Figure 36: NSA Annapolis Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$509,557,908	\$385,500,000
Employment (# of jobs)	7,765	8,197
Purchases	\$206,110,000	\$100,767,109
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$483,000,441	n/a
Employment (# of jobs)	7,651	n/a
Purchases ¹⁴²	\$92,400,000	\$51,400,000
Visitor Spending	n/a	n/a

Sources: Commerce, NSA Annapolis

Figure 37 below presents the economic impacts associated with NSA Annapolis. The NSA Annapolis FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* completed by RESI in 2015.¹⁴³ In FY 2012, RESI found that activity associated with NSA Annapolis supported a total of 12,850 jobs, \$1.4 billion in output, and \$0.7 billion in employee compensation. In FY 2016, activity associated with payroll and procurement supported a total of 12,958 jobs, \$1.6 billion in output, and \$0.5 billion in employee compensation.¹⁴⁴

¹⁴¹ “History,” Commander, Navy Installation Command.

¹⁴² Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹⁴³ Daraius Irani and Jessica Grimm, “Maryland Military Installation Economic Impact Study,” 37.

¹⁴⁴ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 37: Economic Impacts of NSA Annapolis

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	8,197	310	4,451	12,958
Output	\$1,194,970,070	\$72,754,943	\$326,059,529	\$1,593,784,541
Employee Compensation ¹⁴⁵	\$390,342,002	\$17,315,964	\$94,787,955	\$502,445,921
FY 2012				
Employment	7,765	962	4,123	12,850
Output	\$936,442,527	\$118,903,265	\$392,116,184	\$1,447,461,976
Employee Compensation	\$509,557,894	\$49,861,502	\$127,636,496	\$687,055,892

Sources: IMPLAN, RESI

As seen in Figure 37, employment and output impacts stemming from NSA Annapolis increased, while employee compensation impacts decreased. Reported payroll expenditures associated with active duty military increased, while spending on building construction and maintenance decreased. If a longer-term view is considered, impacts have increased from FY 2008 to FY 2016.

17.0 Naval Support Activity Bethesda

The Naval Support Activity Bethesda is home to over 40 tenants, including the Walter Reed National Military Medical Center, the Navy Medicine Professional Development Center, the Uniformed Services University of the Health Sciences, the Armed Forces Radiobiology Research Institute, the Armed Forces Blood Bank, the Naval Dosimetry Center, and the Warrior Transition Brigade.¹⁴⁶ The mission of the installation is to “create an environment that enables patients to heal, staff to thrive, and guests to feel at home,” which is carried out through its tenant commands.¹⁴⁷

The Naval Support Activity Bethesda provided data on payroll, procurement, and visitor information for FY 2016. The installation employed 10,204 personnel in FY 2016, comprised of 4,793 active duty personnel, five reserve personnel, 801 students, and 4,605 civilians. The \$105.9 million in in-state purchases occurred across categories such as building construction and maintenance, utilities, and other purchases. Please note that this in-state spending figure includes roughly \$50 million for the Walter Reed Medical Center. The installation received approximately one million visitors in FY 2016. While payroll and employment was lower in FY

¹⁴⁵ In the IMPLAN model, “employee compensation” impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

¹⁴⁶ “Welcome to Naval Support Activity Bethesda,” Naval Support Activity Bethesda, accessed May 10, 2018, https://www.cnic.navy.mil/regions/ndw/installations/nsa_bethesda.html.

¹⁴⁷ “Mission and Vision,” Naval Support Activity Bethesda, accessed May 10, 2018, https://www.cnic.navy.mil/regions/ndw/installations/nsa_bethesda/about/mission_and_vision.html.

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2016 than in FY 2013, in-state purchases and visitor spending increased. Figure 38 presents spending information at the Naval Support Facility Bethesda in FY 2013 and FY 2016.¹⁴⁸

Figure 38: Naval Support Activity Bethesda Facility Spending, FY 2013 and FY 2016

Facility Spending	FY 2013	FY 2016
Total Spending		
Payroll	\$527,456,113	\$466,260,716
Employment (# of jobs)	11,686	10,204
Purchases	\$293,433,806	\$178,599,978
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$478,893,861	\$424,583,655
Employment (# of jobs)	10,764	7,281
Purchases ¹⁴⁹	\$93,262,802	\$105,946,290
Visitor Spending	\$28,600,000	\$143,000,000

Sources: Commerce, Naval Support Facility Bethesda

Figure 39 below presents the economic impacts associated with the Naval Support Activity Bethesda. The Naval Support Facility Bethesda FY 2013 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.¹⁵⁰ In FY 2013, RESI found that activity associated with the Naval Support Facility Bethesda supported a total of 20,326 jobs, \$1.5 billion in output, and \$728.4 million in employee compensation. In FY 2016, activity associated with payroll, procurement, and visitor spending supported a total of 19,417 jobs, \$1.9 billion in output, and \$871.9 million in employee compensation.¹⁵¹

¹⁴⁸ Please note that RESI's "FY 2012" analysis included FY 2013 data for the Naval Support Activity Bethesda.

¹⁴⁹ Purchases do not include commissary and exchange sales or lodgings in the total to avoid double counting. However, please note that only for NSA Bethesda, medical expenditures are included to account for Walter Reed Medical Center and to maintain consistency with the previous analysis.

¹⁵⁰ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 26.

¹⁵¹ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 39: Economic Impacts of Naval Support Activity Bethesda

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	10,204	2,191	7,022	19,417
Output	\$1,103,041,800	\$333,789,290	\$463,489,903	\$1,900,320,994
Employee Compensation ¹⁵²	\$472,117,098	\$229,225,339	\$170,529,643	\$871,872,079
FY 2013				
Employment	11,686	1,118	7,522	20,326
Output	\$838,885,156	\$132,880,193	\$526,725,835	\$1,498,491,183
Employee Compensation	\$527,456,102	\$36,075,864	\$164,836,179	\$728,368,145

Sources: IMPLAN, RESI

As seen in Figure 39, the economic impact of NSA Bethesda increased across all categories from FY 2013 to FY 2016, with the exception of employment, which saw a slight decrease. This decrease is due to lower reported numbers of on-base military and civilian personnel. However, impacts from FY 2008 to FY 2016 have increased.

18.0 Naval Support Facility Indian Head

Established in 1890, Naval Support Facility Indian Head was the Navy's first facility in southern Maryland.¹⁵³ The facility is now one of the largest employers in Charles County, located approximately 30 miles south of Washington, DC.¹⁵⁴ Over the course of its history, the Naval Support Facility Indian Head has evolved from a gun-testing facility to a multifaceted research and operational support facility that serves multiple branches of the U.S. military.¹⁵⁵ The Naval Support Facility Indian Head is a "center of excellence" for guns; rockets and missiles; energetic chemicals; ordnance devices; missile weapon simulators; explosive process development engineering; and explosive safety, occupational safety and health, and environmental protection.¹⁵⁶

The Naval Support Facility Indian Head provided data on payroll, procurement, and visitor information for FY 2016. In FY 2016, payroll totaled \$322.2 million, while total employment reached 3,278, comprised of 586 permanent active duty military, and 2,396 civilians. Total purchases were nearly \$367.9 million. In-state payroll in FY 2016 totaled \$260.7 million, with 2,241 Maryland residents employed and roughly \$30.5 million purchased in the state. Visitor spending was nearly \$0.1 million. These spending figures are generally higher in FY 2016 than

¹⁵² In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

¹⁵³ "Welcome to Naval Support Facility Indian Head," Naval Support Facility Indian Head, accessed May 7, 2018, https://www.cnmc.navy.mil/regions/ndw/installations/nsa_south_potomac/installations/nsf_indian_head.html.

¹⁵⁴ Ibid.

¹⁵⁵ Ibid.

¹⁵⁶ "About," Naval Support Facility Indian Head, accessed May 7, 2018, https://cnmc.navy.mil/regions/ndw/installations/nsa_south_potomac/installations/nsf_indian_head/about.html.

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they were in FY 2013. Figure 40 presents spending information at the Naval Support Facility Indian Head in FY 2012 and FY 2016.

Figure 40: Naval Support Facility Indian Head Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$243,890,000	\$322,200,000
Employment (# of jobs)	2,564	3,278
Purchases	\$655,220,206	\$367,861,345
Visitor Spending	n/a	n/a
In-State Spending		
Payroll	\$197,999,290	\$260,700,000
Employment (# of jobs)	2,071	2,241
Purchases ¹⁵⁷	\$24,757,824	\$30,487,864
Visitor Spending	n/a	\$99,871

Sources: Commerce, Naval Support Facility Indian Head

Figure 41 below presents the economic impacts associated with the Naval Support Facility Indian Head. The Naval Support Facility Indian Head's FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* completed by RESI in 2015.¹⁵⁸ In FY 2012, RESI found that activity associated with payroll and procurement supported a total of 4,951 jobs, \$544.7 million in output, and \$314.0 million in employee compensation. In FY 2016, activity associated with payroll, procurement, and visitor spending supported a total of 6,309 jobs, \$874.6 million in output, and \$425.0 million in employee compensation.¹⁵⁹

Figure 41: Economic Impacts of Naval Support Facility Indian Head

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	3,278	230	2,801	6,309
Output	\$554,829,674	\$44,840,814	\$274,918,996	\$874,589,484
Employee Compensation ¹⁶⁰	\$326,246,934	\$18,743,181	\$79,921,561	\$424,911,675
FY 2012				
Employment	2,564	300	2,087	4,951
Output	\$333,639,541	\$32,202,847	\$178,861,123	\$544,703,511
Employee Compensation	\$243,890,006	\$12,053,535	\$57,984,416	\$313,928,147

Sources: IMPLAN, RESI

¹⁵⁷ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹⁵⁸ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 25.

¹⁵⁹ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

¹⁶⁰ In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

From FY 2012 to FY 2016 economic impacts associated with Naval Support Activity Indian Head increased across all categories. The increase in direct and induced impacts is due to increased payroll expenditures for civilians. While indirect employment fell, indirect output and employee compensation increased as result of increased procurement and purchases in not-labor-intensive industries.

19.0 Naval Surface Warfare Center Carderock

Naval Surface Warfare Center (NSWC) Carderock is located in West Bethesda, near Washington, DC.¹⁶¹ The science and engineering research facility focuses on maritime technology.¹⁶² Its core competencies are:

- Ship integration and design,
- Environmental quality systems,
- Naval architecture (including propulsors and hull forms),
- Structures and materials,
- Signatures and silencing systems, and
- Vulnerability and survivability systems.¹⁶³

Captain David Taylor founded the precursor to NSWC Carderock at the Washington Navy Yard in 1898, which moved to its Carderock location prior to World War II.¹⁶⁴ The site has evolved as technologies have developed and now engages in physical design and testing as well as computer simulations.¹⁶⁵

As part of its mission, NSWC Carderock has the ability to partner with private industry, academic institutions, and state, local, and foreign governments through Cooperative Research and Development Agreements (CRADA).^{166,167} NSWC Carderock also engages in educational outreach, allowing employees to mentor students and learn from visiting faculty, in addition to hosting internship programs.¹⁶⁸

¹⁶¹ "Warfare Centers: NSWC Carderock Division," Naval Sea Systems Command, accessed May 4, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/>.

¹⁶² "NSWC Carderock: Who We Are," Naval Sea Systems Command, accessed May 4, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/Who-We-Are/>.

¹⁶³ "NSWC Carderock: What We Do," Naval Sea Systems Command, accessed May 4, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/What-We-Do/>.

¹⁶⁴ "NSWC Carderock: Our Heritage," Naval Sea Systems Command, accessed May 7, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/Who-We-Are/>.

¹⁶⁵ Ibid.

¹⁶⁶ "NSWC Carderock: Laboratories and Research Facilities," Naval Sea Systems Command, accessed May 7, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/What-We-Do/Laboratories-and-Research-Facilities/>.

¹⁶⁷ "NSWC Carderock: Business Partnerships," Naval Sea Systems Command, accessed May 7, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/Partnerships/>.

¹⁶⁸ NSWC Carderock: Education Outreach," Naval Sea Systems Command, accessed May 7, 2018, <http://www.navsea.navy.mil/Home/Warfare-Centers/NSWC-Carderock/Partnerships/>.

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The NSWC Carderock provided payroll, procurement, and visitor data for FY 2016. The installation directly employed 1,558 personnel, comprised of one active-duty personnel, 12 reserve personnel, two students, and 1,543 civilian personnel. Total procurement and purchases were approximately \$252.5 million, approximately 15 percent (\$36.7 million) of which was in-state spending, including categories such as building construction and maintenance, utilities, contracts, purchases, and education. Figure 42 presents spending information at the NSWC Carderock in FY 2012 and FY 2016.

Figure 42: NSWC Carderock Facility Spending, FY 2012 and FY 2016

Facility Spending	FY 2012	FY 2016
Total Spending		
Payroll	\$174,000,000	\$311,190,227
Employment (# of jobs)	1,563	1,558
Purchases	\$311,500,000	\$252,513,976
Visitor Spending	n/a	\$2,087,800
In-State Spending		
Payroll	\$149,811,659	\$118,263,634
Employment (# of jobs)	1,346	880
Purchases ¹⁶⁹	\$112,081,400	\$36,671,765
Visitor Spending	\$1,144,000	n/a

Sources: Commerce, NSWC Carderock

Figure 43 below presents the economic impacts associated with the NSWC Carderock. The NSWC Carderock FY 2012 data were published in the *Maryland Military Installation Economic Impact Study* that RESI completed in 2015.¹⁷⁰ In FY 2012, RESI found that activity associated with payroll, procurement, and visitor spending at the NSWC Carderock supported a total of 4,059 jobs, \$556.5 million in output, and \$290.2 million in employee compensation. In FY 2016, activity associated with payroll, procurement, and visitor spending supported a total of 3,205 jobs, \$809.3 million in output, and \$413.2 million in employee compensation.¹⁷¹

¹⁶⁹ Purchases do not include medical health services, commissary and exchange sales, or lodgings in the total to avoid double counting.

¹⁷⁰ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 39.

¹⁷¹ To avoid double counting, payroll inputs into the IMPLAN model do not include badged contractors.

Figure 43: Economic Impacts of NSWC Carderock

Impact	Direct	Indirect	Induced	Total
FY 2016				
Employment	1,558	292	1,356	3,205
Output	\$485,820,969	\$55,618,775	\$267,831,960	\$809,271,704
Employee Compensation ¹⁷²	\$315,098,875	\$20,271,482	\$77,860,981	\$413,231,338
FY 2012				
Employment	1,563	889	1,608	4,059
Output	\$236,081,475	\$148,707,553	\$171,726,877	\$556,515,905
Employee Compensation	\$173,999,996	\$60,523,919	\$55,633,091	\$290,157,006

Sources: IMPLAN, RESI

As seen in Figure 43, direct, induced, and total impacts increased for output and employee compensation from FY 2012 to FY 2016. The increase in direct output and employee compensation is due to a reported increase of \$161.4 million in payroll, despite a reported flat employment change. Indirect impacts decreased due to a decline of \$75.4 million in procurement and purchases, felt primarily in building construction and maintenance and contracts and purchases.

20.0 Conclusion

Together, Maryland's network of military installations supported a total of 374,522 jobs, \$55.5 billion in output, and \$22.1 billion in employee compensation in FY 2016. While some installations experienced declines in impacts from FY 2012—often due to decreased in-state procurement, the completion of major construction projects, or the normalization of spending to pre-conflict levels—statewide employment impacts increased by 0.3 percent, output increased by 8.5 percent, and employee compensation increased by 4.3 percent.

A statewide comparison of reported FY 2012 and FY 2016 data shows that the number of on-base personnel as well as payroll figures increased, while procurement and purchases to Maryland firms, notably building construction and maintenance, decreased. However, despite these shifts in economic activity, the total impact of Maryland's military installations has grown over time.

As can be seen from this analysis, as Maryland residents serve their country and contribute to state and national security, there is a positive benefit to the state as well. While each installation is unique and has a specialized role in Maryland's military ecosystem, together they have consistently been a significant driver of Maryland's economy and have the potential to continue to do so in the future.

¹⁷² In the IMPLAN model, "employee compensation" impacts include both wages paid to employees and non-wage expenses, such as benefits and unemployment insurance.

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Appendix A—Methodology

A.1 IMPLAN Model Overview

To quantify the economic impact of Maryland's military installations, RESI utilized the IMPLAN input/output model. This model enumerates the employment and fiscal impact of each dollar earned and spent by the following: employees of the event, other supporting vendors (business services, retail, etc.), each dollar spent by these vendors on other firms, and each dollar spent by the households of the event's employees, other vendors' employees, and other businesses' employees.

Economists measure three types of economic impacts: direct, indirect, and induced impacts. The direct economic effects are generated as the event creates jobs and workers are hired to support the event's activities. The indirect economic impacts occur as the vendors purchase goods and services from other firms. In either case, the increases in employment generate an increase in household income, as new job opportunities are created and income levels rise. This drives the induced economic impacts that result from households increasing their purchases at local businesses.

Consider the following example. A new firm opens in a region and directly employs 100 workers. The firm purchases supplies, both from outside the region as well as from local suppliers, which leads to increased business for local firms, thereby hypothetically creating jobs for another 100 workers. This is called the indirect effect. The workers at the firm and at suppliers spend their income mostly in the local area, hypothetically creating jobs for another 50 workers. This is the induced effect. The direct, indirect, and induced effects add up to 250 jobs created from the original 100 jobs. Thus, in terms of employment, the total economic impact of the firm in our example is 250.¹⁷³

A.2 IMPLAN Glossary and Impact Examples

This section contains a glossary of IMPLAN terms and examples of economic impacts by type.

Figure 44: IMPLAN Glossary

Term	Definition
Direct Impact	This phrase refers to an economic impact that is the result of the activity being modeled; a direct impact is when a dollar enters the economy.
Economic Impact	This phrase refers to the changes in the economy resulting from a specific event or other activity. RESI typically reports employment, state GDP/output, and income/wage impacts.
Employment	This term refers to the number of jobs supported as a result of the event or other activity which has been modeled in IMPLAN.
Fiscal Impact	This phrase refers to the change in tax revenues resulting from a specific event or other activity.

¹⁷³ Total economic impact is defined as the sum of direct, indirect, and induced effects.

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Term	Definition
IMPLAN	This term refers to the input/output modeling software used to model changes in the economy in a particular region. The user builds a model based on prepackaged economic data from IMPLAN (typically at the state or county level), then enters input figures—an industry change of employment or sales, a household change of income, and/or several other input types—for the industry sectors expected to be impacted as a “scenario.” IMPLAN runs the scenario created in the model and produces the economic and fiscal outputs.
Indirect Impact	An economic impact that is the result of supply purchases for the activity being modeled; after a dollar is spent (the direct impact), the indirect impact is when the business that was paid uses that dollar to buy supplies or materials.
Induced Impact	An economic impact that is the result of increased household income from the modeled activity; after a dollar is spent (the direct impact) and paid to an employee, the induced impact is when an employee can then make purchases because of their increased income.
Output	This term refers to the economic activity created as a result of a specific event or other activity that has been modeled in IMPLAN.
GDP	This term refers to the change in market value of all final goods and services produced by the economy of the region which has been modeled in IMPLAN.
Employee Compensation	This term refers to the change in employee compensation (including all salaries and wages, as well as benefits and payroll taxes paid by an employer) associated with the job and state GDP/output creation resulting from district activity which has been modeled in IMPLAN.

Sources: IMPLAN, RESI

As an example of the different types of impacts, consider the economic impacts associated with research at a military laboratory facility. In this example, a scientist has just developed a new type of flameproof coating.

Figure 45: Economic Impact Example

	Direct Impact	Indirect Impact	Induced Impact
Employment	The scientist	A test-tube maker	A waiter
Output	The scientific breakthrough	A test tube	A meal at a restaurant
Employee Compensation	The scientist's salary	The test-tube maker's salary	The waiter's salary

Source: RESI

In the example above, a scientist is the direct employment impact, as she is the one working in the research laboratory and conducting the research that leads to the scientific breakthrough of the new type of flameproof coating (the direct output impact). The scientist's salary (as well as

any benefits, such as health insurance), which she receives because she works in the research laboratory facility, would be the direct employee compensation impact. A test-tube maker would be an indirect employment impact, as the test tube would be necessary laboratory supplies (and therefore an indirect output impact) for the scientist to do her research. The test-tube maker's salary would be an indirect employee compensation impact because it is the pay he receives as the supplier. A waiter would be an induced employment impact because the scientists can use dollars from her salary to go out to eat and pay for a meal (the meal would be the induced output impact). The waiter's salary would be the induced employee compensation impact.

A.3 Input Assumptions

For this analysis, data regarding employment, payroll, purchases and procurement, and visitor totals were collected from the military installations/Commerce and publically available sources, cleaned, and inputted into the IMPLAN model. Depending on data availability from the installation and Commerce, RESI either relied on self-reported data or utilized employment data from ASIP [Army Stationing and Installation Plan]. For purchases/procurement and visitor spending, RESI followed the methodology used in the 2015 *Maryland Military Installation Economic Impact Study*.¹⁷⁴

- Economic impact multipliers are developed from IMPLAN input/output software.
- IMPLAN data are based on the North American Industrial Classification System (NAICS).
- IMPLAN employment multipliers are adjusted for inflation using the Bureau of Labor Statistics CPI-U.
- Impacts are based on 2015 IMPLAN data for Maryland.
- For FY 2016 impacts, RESI used a 2016 event year in IMPLAN; impacts are presented in 2018 dollars. When data for FY 2017 were provided, RESI utilized a 2017 event year; impacts are presented in 2018 dollars.
- Employment impacts include both full- and part-time employees.¹⁷⁵ IMPLAN does not differentiate between full- and part-time employment.

Figure 46 contains the IMPLAN codes used in this analysis.

Figure 46: IMPLAN Codes Used in Analysis

Code	Description
Payroll	
535	Employment and payroll of federal govt, non-military
536	Employment and payroll of federal govt, military
Procurement and Purchases	

¹⁷⁴ Daraius Irani and Jessica Grimm, "Maryland Military Installation Economic Impact Study," 20, accessed April 25, 2018, <http://commerce.maryland.gov/Documents/ResearchDocument/MarylandMilitaryInstallationEconomicImpactStudy2015.pdf>.

¹⁷⁵ To remain consistent with reports conducted in 2008 and 2015, total payroll figures and in-state procurement totals were used within IMPLAN for FY 2017.

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Code	Description
49	Electric power transmission and distribution
50	Natural gas distribution
51	Water, sewage and other systems
54	Construction of new power and communication structures
56	Construction of new highways and streets
58	Construction of other new nonresidential structures
62	Maintenance and repair construction of nonresidential structures
64	Maintenance and repair construction of highways, streets, bridges, and tunnels
106	Bottled and canned soft drinks & water
130	Apparel accessories and other apparel manufacturing
247	Hardware manufacturing
275	Air purification and ventilation equipment manufacturing
276	Heating equipment (except warm air furnaces) manufacturing
292	Overhead cranes, hoists, and monorail systems manufacturing
301	Electronic computer manufacturing
306	Other communications equipment manufacturing
313	Other electronic component manufacturing
315	Search, detection, and navigation instruments manufacturing
320	Analytical laboratory instrument manufacturing
356	Other motor vehicle parts manufacturing
359	Other aircraft parts and auxiliary equipment manufacturing
363	Ship building and repairing
379	Surgical and medical instrument manufacturing
394	All other miscellaneous manufacturing
395	Wholesale trade
398	Retail - Electronics and appliance stores
402	Retail - Gasoline stores
410	Water transportation
412	Transit and ground passenger transportation
426	Cable and other subscription programming
427	Wired telecommunications carriers
428	Wireless telecommunications carriers (except satellite)
429	Satellite, telecommunications resellers, and all other telecommunications
432	Internet publishing and broadcasting and web search portals
440	Real estate
445	Commercial and industrial machinery and equipment rental and leasing
449	Architectural, engineering, and related services
451	Custom computer programming services

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Code	Description
452	Computer systems design services
453	Other computer related services, including facilities management
454	Management consulting services
455	Environmental and other technical consulting services
456	Scientific research and development services
460	Marketing research and all other miscellaneous professional, scientific, and technical services
462	Office administrative services
463	Facilities support services
466	Travel arrangement and reservation services
467	Investigation and security services
468	Services to buildings
470	Other support services
471	Waste management and remediation services
472	Elementary and secondary schools
473	Junior colleges, colleges, universities, and professional schools
474	Other educational services
482	Hospitals
483	Nursing and community care facilities
497	Fitness and recreational sports centers
499	Hotels and motels, including casino hotels
506	Electronic and precision equipment repair and maintenance
507	Commercial and industrial machinery and equipment repair and maintenance
514	Grantmaking, giving, and social advocacy organizations
535	Employment and payroll of federal govt, non-military
536	Employment and payroll of federal govt, military
Visitor Spending	
499	Hotels and motels, including casino hotels
501	Full-service restaurants
502	Limited-service restaurants
503	All other food and drinking places

Sources: IMPLAN, RESI

Appendix B—EIS Questionnaire

Figure 47: EIS Questionnaire—Adelphi Laboratory Center

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	11	27
Reserve	81	171
Rotational	0	0
Students	0	0
Civilian	1,142	1,986
Total	1,234	2,184
Maryland Resident Employment¹⁷⁶		
Active duty military	-	17
Reserve	-	171
Rotational	-	0
Students	-	0
Civilian	-	1,615
Total	-	1,803
Maryland/Total Resident Payroll (in millions)¹⁷⁷		
Active duty military	-	\$0.0
Reserve	-	\$12.7
Rotational	-	\$0.0
Students	-	\$0.0
Civilian	-	\$184.3
Total	-	\$196.9
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$7.2	\$6.9
Utilities	\$0.4	\$3.1
Medical health service ¹⁷⁸	\$0.0	\$0.0
Contracts and purchases	\$82.6	\$49.1
Education payments	\$0.0	\$0.0
Commissary and exchange sales and lodging ¹⁷⁹	n/a	n/a
Total	\$90.2	\$59.1
Visitors and Spending		
Total visitors	10,709	10,639
Visitor spending (in-state, in millions)	\$0.9	\$3.0

Sources: ALC, Commerce, RESI

¹⁷⁶ The U.S. Army Research Laboratory did not provide state-level employment information in FY 2012.

¹⁷⁷ The U.S. Army Research Laboratory did not provide state-level payroll information in FY 2012.

¹⁷⁸ Medical expenses are excluded from the total to avoid double counting.

¹⁷⁹ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 48: EIS Questionnaire—Aberdeen Proving Ground

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	1,260	1,525
Reserve	1,680	1,103
Rotational	n/a	-
Students	11	-
Civilian	12,829	12,178
Total	15,780	14,806
Maryland Resident Employment		
Active duty military	1,260	1,525
Reserve	1,680	959
Rotational	n/a	0
Students	11	0
Civilian	7,911	10,594
Total	10,862	13,078
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$109.9	\$133.9
Reserve	\$8.4	\$42.6
Rotational	n/a	\$0.0
Students	\$0.2	\$0.0
Civilian	\$626.7	\$872.1
Total	\$760.7	\$1,048.6
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$37.8	\$19.0
Utilities	\$21.2	\$0.2
Medical health service ¹⁸⁰	\$0.1	\$0.0
Contracts and purchases	\$1,841.1	\$1,247.5
Education payments	\$6.1	\$0.0
Commissary and exchange sales and lodging ¹⁸¹	\$36.6	n/a
Total	\$1,906.2	\$1,266.6
Visitors and Spending		
Total visitors	199,812	96,000
Visitor spending (in-state, in millions)	\$43.4	\$27.5

Sources: APG, Commerce, RESI

¹⁸⁰ Medical expenses are excluded from the total to avoid double counting.

¹⁸¹ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 49: EIS Questionnaire—Army Corps of Engineers—Baltimore District

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	17	15
Reserve	0	0
Rotational	0	0
Students	0	0
Civilian	1,193	1,030
Total	1,210	1,045
Maryland Resident Employment		
Active duty military	17	n/a
Reserve	0	n/a
Rotational	0	n/a
Students	0	n/a
Civilian	806	n/a
Total	823	n/a
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$1.9	\$1.3
Reserve	\$0.0	\$0.0
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$66.4	\$88.8
Total	\$68.4	\$90.1
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$222.3	\$301.6
Utilities	\$2.1	\$0.0
Medical health service ¹⁸²	\$0.0	\$0.0
Contracts and purchases	\$10.4	\$30.6
Education payments	\$0.0	\$0.0
Commissary and exchange sales and lodging ¹⁸³	\$0.3	n/a
Total	\$234.8	\$332.2
Visitors and Spending		
Total visitors	n/a	n/a
Visitor spending (in-state, in millions)	n/a	n/a

Sources: Army Corps of Engineers—Baltimore District, Commerce, RESI

¹⁸² Medical expenses are excluded from the total to avoid double counting.

¹⁸³ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 50: EIS Questionnaire—Coast Guard Yard

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	569	655
Reserve	148	135
Rotational	0	0
Students	0	0
Civilian	974	1,088
Total	1,691	1,878
Maryland Resident Employment		
Active duty military	362	n/a
Reserve	103	n/a
Rotational	0	n/a
Students	0	n/a
Civilian	784	n/a
Total	1,249	n/a
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$28.1	\$49.1
Reserve	\$0.3	\$1.4
Rotational	\$0.0	n/a
Students	\$0.0	n/a
Civilian	\$46.7	\$71.3
Total	\$75.2	\$121.8
MD/Total Procurement and Purchases (in millions)		
Building construction and maintenance	\$11.9	\$11.8
Utilities	\$2.8	\$5.1
Medical health service ¹⁸⁴	\$0	\$0.1
Contracts and purchases	\$19.8	\$32.9
Education payments	\$0.1	\$0.1
Commissary and exchange sales and lodging ¹⁸⁵	n/a	n/a
Total	\$34.7	\$50.0
Visitors and Spending		
Total visitors	4,108	n/a
Visitor spending (in-state, in millions)	\$0.9	n/a

Sources: CGY, Commerce, RESI

¹⁸⁴ Medical expenses are excluded from the total to avoid double counting.

¹⁸⁵ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 51: EIS Questionnaire—Fort Detrick

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	1,644	1,349
Reserve	223	286
Rotational	n/a	2,450
Students	25	430
Civilian	5,674	4,126
Total	7,566	8,641
Maryland Resident Employment		
Active duty military	1,644	1,349
Reserve	198	266
Rotational	n/a	2,450
Students	25	430
Civilian	5,004	3,191
Total	6,871	7,686
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$115.9	\$133.0
Reserve	\$2.4	\$5.0
Rotational	n/a	\$241.5
Students	\$0.5	\$42.4
Civilian	\$722.9	\$657.1
Total	\$841.74	\$1,079.0
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$609.5	\$112.4
Utilities	\$0.0	\$64.1
Medical health service ¹⁸⁶	\$13.6	\$18.7
Contracts and purchases	\$1,696.2	\$1,139.2
Education payments	\$0.3	\$0.6
Commissary and exchange sales and lodging ¹⁸⁷	\$25.2	\$23.7
Other	n/a	\$175.9
Total	\$2,306.0	\$1,492.2
Visitors and Spending		
Total visitors	311,721	228,279
Visitor spending (in-state, in millions)	n/a	\$65.3

Sources: Commerce, Fort Detrick, RESI

¹⁸⁶ Medical expenses are excluded from the total to avoid double counting.

¹⁸⁷ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 52: EIS Questionnaire—Fort Meade

	FY 2012	FY 2016/2017
On-Base Personnel		
Active duty military	n/a	n/a
Reserve	n/a	n/a
Rotational	n/a	n/a
Students	n/a	n/a
Civilian	n/a	n/a
Total	51,609	55,568
Maryland Resident Employment		
Active duty military	n/a	n/a
Reserve	n/a	n/a
Rotational	n/a	n/a
Students	n/a	n/a
Civilian	n/a	n/a
Total	n/a	n/a
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$421.5	\$579.4
Reserve	\$0.0	\$0.0
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$2,810.9	\$3,021.8
Total	\$3,232.4	\$3,601.1
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$2,204.8	\$279.9
Utilities	\$0.0	\$3.4
Medical health service ¹⁸⁸	\$0.0	\$0.0
Contracts and purchases	\$5,285.3	\$7,088.9
Education payments	\$0.0	\$42.3
Commissary and exchange sales and lodging ¹⁸⁹	\$0.0	n/a
Total	\$7,490.1	\$7,414.4
Visitors and Spending		
Total visitors	12,023	52,863
Visitor spending (in-state, in millions)	\$3.4	\$7.6

Sources: Commerce, Fort Meade, RESI

¹⁸⁸ Medical expenses are excluded from the total to avoid double counting.

¹⁸⁹ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 53: EIS Questionnaire—Joint Base Andrews

	FY 2013	FY 2016
On-Base Personnel		
Active duty military	12,478	4,767
Reserve	0	6,609
Rotational	0	0
Students	0	0
Civilian	5,068	4,130
Total	17,546	15,506
Maryland Resident Employment		
Active duty military	7,526	n/a
Reserve	0	n/a
Rotational	0	n/a
Students	0	n/a
Civilian	3,053	n/a
Total	10,579	n/a
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$605.9	\$529.2
Reserve	\$0.0	\$173.1
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$162.0	\$330.2
Total	\$767.8	\$1,032.4
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$16.3	\$61.0
Utilities	\$18.3	\$0.0
Medical health service ¹⁹⁰	\$2.1	\$0.0
Contracts and purchases	\$29.4	\$190.1
Education payments	\$0.1	\$4.1
Commissary and exchange sales and lodging ¹⁹¹	\$0.0	n/a
Total	\$64.1	\$255.2
Visitors and Spending		
Total visitors	n/a	n/a
Visitor spending (in-state, in millions)	n/a	n/a

Sources: Commerce, Joint Base Andrews, RESI

¹⁹⁰ Medical expenses are excluded from the total to avoid double counting.

¹⁹¹ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 54: EIS Questionnaire—Maryland Military Department-MD Army & Air National Guard

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	1,269	1,260
Reserve	4,963	4,768
Rotational	0	0
Students	0	0
Civilian	829	612
Total	7,061	6,640
Maryland Resident Employment¹⁹²		
Active duty military	n/a	n/a
Reserve	n/a	n/a
Rotational	n/a	n/a
Students	n/a	n/a
Civilian	n/a	n/a
Total	n/a	6,508
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$102.0	\$178.8 ¹⁹³
Reserve	\$61.2	\$0.0
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$11.6	\$10.4
Total	\$174.9	\$189.2
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$27.9	\$65.4
Utilities	\$1.3	\$2.5
Medical health service ¹⁹⁴	\$0.4	\$0.0
Contracts and purchases	\$8.2	\$28.1
Education payments	\$0.0	\$0.1
Commissary and exchange sales and lodging ¹⁹⁵	\$0.0	\$0.0
Total	\$37.6	\$96.1
Visitors and Spending¹⁹⁶		
Total visitors	n/a	n/a
Visitor spending (in-state, in millions)	n/a	n/a

Sources: Commerce, MD National Guard, RESI

¹⁹² Maryland Resident Employment figures were not provided by the installation in FY 2012. Only a total figure was provided in FY 2016.

¹⁹³ This value is the total for both active duty military and reserves in FY 2016.

¹⁹⁴ Medical expenses are excluded from the total to avoid double counting.

¹⁹⁵ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

¹⁹⁶ There is no visitor spending data for the MD National Guard.

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Figure 55: EIS Questionnaire—National Maritime Intelligence Center

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	570	800
Reserve	0	600
Rotational	0	5
Students	0	0
Civilian	1,320	1,580
Total	1,890	2,985
Maryland Resident Employment¹⁹⁷		
Active duty military	479	n/a
Reserve	0	n/a
Rotational	0	n/a
Students	0	n/a
Civilian	1,109	n/a
Total	1,588	n/a
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$31.5	\$74.6
Reserve	\$0.0	\$3.9
Rotational	\$0.0	\$0.9
Students	\$0.0	\$0.0
Civilian	\$135.8	\$197.4
Total	\$167.3	\$276.8
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$0.0	\$3.0
Utilities	\$0.0	\$4.4
Medical health service ¹⁹⁸	\$0.0	\$0.0
Contracts and purchases	\$69.4	\$0.02
Education payments	\$0.2	\$0.0
Commissary and exchange sales and lodging ¹⁹⁹	n/a	\$0.0
Total	\$69.6	\$7.4
Visitors and Spending		
Total visitors	n/a	n/a
Visitor spending (in-state, in millions)	n/a	n/a

Sources: Commerce, NMIC, RESI

¹⁹⁷ FY 2016 values are the raw data provided by NMIO.

¹⁹⁸ Medical expenses are excluded from the total to avoid double counting.

¹⁹⁹ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 56: EIS Questionnaire—Naval Air Station Patuxent River

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	2,342	2,400
Reserve	0	240
Rotational	0	0
Students	0	97
Civilian	9,382	19,121
Total	11,724	21,858
Maryland Resident Employment		
Active duty military	2,037	864
Reserve	0	49
Rotational	0	0
Students	0	0
Civilian	8,862	8,022
Total	10,899	8,935
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$123.5 ²⁰⁰	\$296.5
Reserve	\$0.0	\$46.8
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$831.5	\$1,605.3
Total	\$955.0	\$1,948.6
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$0.0	\$0.0
Utilities	\$0.0	\$0.0
Medical health service ²⁰¹	N/A	\$0.4
Contracts and purchases	\$1,696.8	\$1,670.0
Education payments	\$2.4	\$0.0
Commissary and exchange sales and lodging ²⁰²	\$28.5	n/a
Total	\$1,699.2	\$1,670.0
Visitors and Spending		
Total visitors	72,000	10,350
Visitor spending (in-state, in millions)	\$29.4	\$3.0

Sources: Commerce, Pax River, RESI

²⁰⁰ Maryland resident active duty military payroll for FY 2012 was estimated using FY 2008 data.

²⁰¹ Medical expenses are excluded from the total to avoid double counting.

²⁰² Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 57: EIS Questionnaire—Naval Research Laboratory Chesapeake Bay

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	0	0
Reserve	0	0
Rotational	0	0
Students	0	0
Civilian	15	12
Total	15	12
Maryland Resident Employment		
Active duty military	0	0
Reserve	0	0
Rotational	0	0
Students	0	0
Civilian	14	11
Total	14	11
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$0.0	\$0.0
Reserve	\$0.0	\$0.0
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$1.6	\$1.4
Total	\$1.6	\$1.4
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$1.8	\$0.0
Utilities	\$0.1	\$0.2
Medical health service ²⁰³	\$0.0	\$0
Contracts and purchases	\$2.4	\$2.6
Education payments	\$0.0	\$0
Commissary and exchange sales and lodging ²⁰⁴	n/a	n/a
Total	\$4.3	\$2.8
Visitors and Spending		
Total visitors	6,000	4,596
Visitor spending (in-state, in millions)	\$0.7	\$0.7

Sources: Commerce, NRL Chesapeake, RESI

²⁰³ Medical expenses are excluded from the total to avoid double counting.

²⁰⁴ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 58: EIS Questionnaire—Naval Support Activity Annapolis

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	1,226	1,226
Reserve	147	147
Rotational	0	0
Students	4,000	4,443
Civilian	2,392	2,381
Total	7,765	8,197
Maryland Resident Employment²⁰⁵		
Active duty military	1,208	n/a
Reserve	145	n/a
Rotational	0	n/a
Students	3,941	n/a
Civilian	2,357	n/a
Total	7,651	n/a
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$76.3	\$169.8
Reserve	\$9.1	\$16.2
Rotational	\$0.0	\$0.0
Students	\$248.8	\$67.9
Civilian	\$148.8	\$131.6
Total	\$483.0	\$385.5
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$59.4	\$25.5
Utilities	\$13.2	\$25.9
Medical health service ²⁰⁶	\$0.0	\$26.0
Contracts and purchases	\$22.9	\$0.0
Education payments	\$0.6	\$0.0
Commissary and exchange sales and lodging ²⁰⁷	\$31.6	\$30.6
Total	\$96.1	\$51.4
Visitors and Spending²⁰⁸		
Total visitors	2.2 million	2.2 million
Visitor spending (in-state, in millions)	n/a	n/a

Sources: Commerce, NSA Annapolis, RESI

²⁰⁵ Maryland Resident Employment figures were not provided by the installation.

²⁰⁶ Medical expenses are excluded from the total to avoid double counting.

²⁰⁷ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

²⁰⁸ The Naval Academy has over 2 million visitors per year as part of its educational mission, for sporting events, and for other military support functions. Because the reason for their visit is unknown, visitor activity at Annapolis is excluded from this analysis.

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Figure 59: EIS Questionnaire—Naval Support Facility Indian Head

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	600	586
Reserve	0	0
Rotational	0	0
Students	0	0
Civilian	1,964	2,692
Total	2,564	3,278
Maryland Resident Employment		
Active duty military	485	586
Reserve	0	0
Rotational	0	0
Students	0	0
Civilian	1,586	2,241
Total	2,071	2,827
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$46.3	\$22.9
Reserve	\$0.0	\$0.0
Rotational	\$0.0	\$0.0
Students	\$0.0	\$0.0
Civilian	\$151.7	\$299.3
Total	\$198.0	\$322.2
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$24.7	\$0.0
Utilities	\$0.0	\$0.0
Medical health service ²⁰⁹	\$0.0	\$0.0
Contracts and purchases	\$0.0	\$30.4
Education payments	\$0.1	\$0.04
Commissary and exchange sales and lodging ²¹⁰	\$0.0	\$0.0
Total	\$24.8	\$30.5
Visitors and Spending		
Total visitors	n/a	582
Visitor spending (in-state, in millions)	n/a	\$0.1

Sources: Commerce, Naval Support Facility Indian Head, RESI

²⁰⁹ Medical expenses are excluded from the total to avoid double counting.

²¹⁰ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 60: EIS Questionnaire—Naval Support Activity Bethesda

	FY 2013	FY 2016
On-Base Personnel		
Active duty military	4,860	4,793
Reserve	5	5
Rotational	0	0
Students	1,321	801
Civilian	5,500	4,605
Total	11,686	10,204
Maryland Resident Employment		
Active duty military	4,688	4,198
Reserve	0	5
Rotational	5	0
Students	1,176	713
Civilian	4,895	2,365
Total	10,764	7,281
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$123.1	\$131.9
Reserve	\$0.3	\$0.3
Rotational	\$0.0	\$0.0
Students	\$42.4	\$28.9
Civilian	\$313.2	\$305.1
Total	\$478.9	\$466.3
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$19.4	\$19.1
Utilities	\$18.8	\$32.4
Medical health service ²¹¹	\$51.8	\$51.2
Contracts and purchases	\$3.2	\$3.2
Education payments	\$0.0	\$0.0
Commissary and exchange sales and lodging ²¹²	\$36.3	\$38.4
Total	\$93.3	\$105.9
Visitors and Spending		
Total visitors	1,000,000	1,000,000
Visitor spending (in-state, in millions)	\$28.6	\$143.0

Sources: Commerce, Naval Support Activity Bethesda, RESI

²¹¹ Medical expenses are included in the analysis only for NSA Bethesda to maintain consistency with previous analysis and to reflect the activity of Walter Reed.

²¹² Commissary and exchange sales and lodging are not included in the total to avoid double counting.

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Figure 61: EIS Questionnaire—Naval Surface Warfare Center Carderock

	FY 2012	FY 2016
On-Base Personnel		
Active duty military	2	1
Reserve	0	12
Rotational	0	0
Students	0	2
Civilian	1,561	1,543
Total	1,563	1,558
Maryland Resident Employment		
Active duty military	2	1
Reserve	0	7
Rotational	0	0
Students	0	2
Civilian	1,344	870
Total	1,346	880
Maryland/Total Resident Payroll (in millions)		
Active duty military	\$0.2	\$0.2
Reserve	\$0.0	\$0.5
Rotational	\$0.0	\$0.0
Students	\$0.1	\$0.0
Civilian	\$149.6	\$310.4
Total	\$149.8	\$311.2
Maryland Procurement and Purchases (in millions)		
Building construction and maintenance	\$50.1	\$5.2
Utilities	\$8.0	\$4.9
Medical health service ²¹³	\$0.0	\$0.0
Contracts and purchases	\$54.0	\$26.3
Education payments	\$0.0	\$0.3
Commissary and exchange sales and lodging ²¹⁴	\$0.0	\$0.0
Total	\$112.1	\$36.7
Visitors and Spending		
Total visitors	8,000	8,600
Visitor spending (in-state, in millions)	\$1.1	\$2.1

Sources: Commerce, NSWC Carderock, RESI

²¹³ Medical expenses are excluded from the total to avoid double counting.

²¹⁴ Commissary and exchange sales and lodging are not included in the total to avoid double counting.

Appendix C—Detailed Impacts

**Figure 62: Detailed Economic Impacts of the Adelphi Laboratory Center, FY 2016—
Employment**

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	3	3
Mining	0	0	1	1
Utilities	0	5	5	9
Construction	0	43	23	66
Manufacturing	0	1	10	12
Wholesale Trade	0	11	44	55
Retail Trade	0	7	300	307
Transportation and Warehousing	0	5	47	53
Information	0	3	26	29
Finance and Insurance	0	6	114	120
Real Estate and Rental and Leasing	0	15	87	102
Professional, Scientific and Technical Services	0	301	85	386
Management of Companies and Enterprises	0	3	10	13
Administrative and Support and Waste Management and Remediation Services	0	43	107	150
Educational Services	0	0	79	79
Health Care and Social Services	0	0	405	405
Arts, Entertainment and Recreation	0	3	66	68
Accommodation and Food Services	0	36	228	264
Other Services	0	6	211	217
Government	2,184	2	12	2,198
Total	2,184	490	1,864	4,538

Sources: IMPLAN, RESI

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Figure 63: Detailed Economic Impacts of the Adelphi Laboratory Center, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$12,087	\$225,980	\$238,068
Mining	\$0	\$84,044	\$103,333	\$187,377
Utilities	\$0	\$4,738,373	\$4,819,628	\$9,558,001
Construction	\$0	\$7,053,215	\$2,680,633	\$9,733,848
Manufacturing	\$0	\$605,878	\$3,638,328	\$4,244,207
Wholesale Trade	\$0	\$2,806,772	\$7,920,424	\$10,727,196
Retail Trade	\$0	\$533,042	\$17,265,167	\$17,798,209
Transportation and Warehousing	\$0	\$780,426	\$4,880,164	\$5,660,590
Information	\$0	\$1,940,050	\$10,305,374	\$12,245,424
Finance and Insurance	\$0	\$1,333,149	\$19,374,102	\$20,707,251
Real Estate and Rental and Leasing	\$0	\$3,988,422	\$41,223,712	\$45,212,134
Professional, Scientific and Technical Services	\$0	\$54,248,154	\$8,187,893	\$62,436,046
Management of Companies and Enterprises	\$0	\$678,816	\$1,758,736	\$2,437,552
Administrative and Support and Waste Management and Remediation Services	\$0	\$3,686,817	\$5,407,737	\$9,094,555
Educational Services	\$0	\$4,281	\$4,469,237	\$4,473,518
Health Care and Social Services	\$0	\$157	\$29,819,773	\$29,819,930
Arts, Entertainment and Recreation	\$0	\$151,454	\$3,709,998	\$3,861,453
Accommodation and Food Services	\$0	\$3,613,513	\$10,360,492	\$13,974,005
Other Services	\$0	\$740,145	\$11,923,148	\$12,663,293
Government	\$335,939,499	\$190,554	\$1,249,539	\$337,379,592
Total	\$335,939,499	\$87,189,350	\$189,323,397	\$612,452,247

Sources: IMPLAN, RESI

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Figure 64: Detailed Economic Impacts of the Adelphi Laboratory Center, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$2,458	\$28,672	\$31,129
Mining	\$0	\$6,873	\$4,674	\$11,547
Utilities	\$0	\$493,366	\$484,886	\$978,252
Construction	\$0	\$1,983,610	\$722,036	\$2,705,647
Manufacturing	\$0	\$98,718	\$453,732	\$552,450
Wholesale Trade	\$0	\$931,238	\$2,627,858	\$3,559,095
Retail Trade	\$0	\$263,393	\$6,399,647	\$6,663,040
Transportation and Warehousing	\$0	\$245,479	\$1,485,005	\$1,730,485
Information	\$0	\$294,916	\$1,444,893	\$1,739,809
Finance and Insurance	\$0	\$478,287	\$5,746,486	\$6,224,773
Real Estate and Rental and Leasing	\$0	\$279,863	\$1,186,295	\$1,466,159
Professional, Scientific and Technical Services	\$0	\$24,767,844	\$3,376,181	\$28,144,025
Management of Companies and Enterprises	\$0	\$350,977	\$909,341	\$1,260,318
Administrative and Support and Waste Management and Remediation Services	\$0	\$1,917,935	\$2,497,373	\$4,415,308
Educational Services	\$0	\$2,394	\$2,665,753	\$2,668,147
Health Care and Social Services	\$0	\$83	\$15,484,166	\$15,484,249
Arts, Entertainment and Recreation	\$0	\$40,471	\$1,011,866	\$1,052,337
Accommodation and Food Services	\$0	\$1,129,663	\$3,609,223	\$4,738,886
Other Services	\$0	\$280,221	\$4,075,379	\$4,355,600
Government	\$199,386,290	\$155,311	\$822,730	\$200,364,330
Total	\$199,386,290	\$33,723,100	\$55,036,197	\$288,145,586

Sources: IMPLAN, RESI

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Figure 65: Detailed Economic Impacts of Aberdeen Proving Ground, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	4	25	29
Mining	0	2	6	8
Utilities	0	9	38	47
Construction	0	199	174	373
Manufacturing	0	1,232	80	1,313
Wholesale Trade	0	164	340	504
Retail Trade	0	113	2,314	2,427
Transportation and Warehousing	0	94	366	459
Information	0	64	198	262
Finance and Insurance	0	99	878	977
Real Estate and Rental and Leasing	0	228	670	899
Professional, Scientific and Technical Services	0	1,400	656	2,056
Management of Companies and Enterprises	0	121	79	200
Administrative and Support and Waste Management and Remediation Services	0	4,438	827	5,265
Educational Services	0	1	609	610
Health Care and Social Services	0	0	3,117	3,117
Arts, Entertainment and Recreation	0	41	506	547
Accommodation and Food Services	0	344	1,754	2,098
Other Services	0	1,552	1,625	3,177
Government	14,806	21	94	14,921
Total	14,806	10,125	14,358	39,289

Sources: IMPLAN, RESI

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Figure 66: Detailed Economic Impacts of Aberdeen Proving Ground, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$280,424	\$1,696,182	\$1,976,606
Mining	\$0	\$323,725	\$775,653	\$1,099,378
Utilities	\$0	\$12,933,915	\$36,159,886	\$49,093,800
Construction	\$0	\$32,085,074	\$20,133,733	\$52,218,807
Manufacturing	\$0	\$449,408,732	\$27,307,485	\$476,716,217
Wholesale Trade	\$0	\$42,676,185	\$59,467,443	\$102,143,628
Retail Trade	\$0	\$8,372,002	\$129,659,726	\$138,031,728
Transportation and Warehousing	\$0	\$13,537,210	\$36,667,853	\$50,205,063
Information	\$0	\$34,240,124	\$77,329,450	\$111,569,574
Finance and Insurance	\$0	\$21,556,284	\$145,377,545	\$166,933,828
Real Estate and Rental and Leasing	\$0	\$63,961,231	\$309,655,153	\$373,616,385
Professional, Scientific and Technical Services	\$0	\$304,003,897	\$61,499,809	\$365,503,706
Management of Companies and Enterprises	\$0	\$29,847,210	\$13,203,731	\$43,050,941
Administrative and Support and Waste Management and Remediation Services	\$0	\$404,685,518	\$40,620,024	\$445,305,542
Educational Services	\$0	\$55,647	\$33,639,626	\$33,695,273
Health Care and Social Services	\$0	\$4,076	\$223,808,114	\$223,812,190
Arts, Entertainment and Recreation	\$0	\$2,411,226	\$27,872,023	\$30,283,249
Accommodation and Food Services	\$0	\$33,485,369	\$77,797,796	\$111,283,165
Other Services	\$0	\$218,536,195	\$89,498,484	\$308,034,679
Government	\$2,044,730,831	\$2,705,030	\$9,379,118	\$2,056,814,979
Total	\$2,044,730,831	\$1,675,109,072	\$1,421,548,835	\$5,141,388,739

Sources: IMPLAN, RESI

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Figure 67: Detailed Economic Impacts of Aberdeen Proving Ground, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$70,943	\$215,220	\$286,163
Mining	\$0	\$24,091	\$35,110	\$59,201
Utilities	\$0	\$1,295,841	\$3,637,939	\$4,933,780
Construction	\$0	\$9,116,030	\$5,423,056	\$14,539,086
Manufacturing	\$0	\$101,790,581	\$3,405,874	\$105,196,455
Wholesale Trade	\$0	\$14,159,209	\$19,730,253	\$33,889,462
Retail Trade	\$0	\$5,202,929	\$48,060,731	\$53,263,660
Transportation and Warehousing	\$0	\$4,450,348	\$11,156,570	\$15,606,919
Information	\$0	\$5,483,400	\$10,843,414	\$16,326,814
Finance and Insurance	\$0	\$8,103,453	\$43,122,757	\$51,226,210
Real Estate and Rental and Leasing	\$0	\$4,367,546	\$8,903,019	\$13,270,566
Professional, Scientific and Technical Services	\$0	\$126,768,761	\$25,357,560	\$152,126,321
Management of Companies and Enterprises	\$0	\$15,432,280	\$6,826,892	\$22,259,172
Administrative and Support and Waste Management and Remediation Services	\$0	\$263,013,615	\$18,755,964	\$281,769,579
Educational Services	\$0	\$31,030	\$20,066,003	\$20,097,033
Health Care and Social Services	\$0	\$2,106	\$116,212,768	\$116,214,874
Arts, Entertainment and Recreation	\$0	\$611,861	\$7,604,365	\$8,216,226
Accommodation and Food Services	\$0	\$10,654,991	\$27,101,932	\$37,756,923
Other Services	\$0	\$84,753,318	\$30,593,147	\$115,346,464
Government	\$1,061,759,002	\$2,057,782	\$6,177,485	\$1,069,994,269
Total	\$1,061,759,002	\$657,390,115	\$413,230,059	\$2,132,379,177

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 68: Detailed Economic Impacts of the Army Corps of Engineers—Baltimore District, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	1	3	4
Mining	0	2	1	3
Utilities	0	2	5	7
Construction	0	1,623	22	1,645
Manufacturing	0	27	10	37
Wholesale Trade	0	85	42	127
Retail Trade	0	97	288	385
Transportation and Warehousing	0	38	46	84
Information	0	10	25	35
Finance and Insurance	0	21	109	130
Real Estate and Rental and Leasing	0	42	83	125
Professional, Scientific and Technical Services	0	287	82	369
Management of Companies and Enterprises	0	9	10	19
Administrative and Support and Waste Management and Remediation Services	0	430	103	533
Educational Services	0	0	77	77
Health Care and Social Services	0	0	388	388
Arts, Entertainment and Recreation	0	10	63	73
Accommodation and Food Services	0	24	218	242
Other Services	0	49	202	251
Government	1,045	6	12	1,062
Total	1,045	2,764	1,787	5,596

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 69: Detailed Economic Impacts of the Army Corps of Engineers—Baltimore District, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$61,842	\$255,511	\$317,353
Mining	\$0	\$529,468	\$116,881	\$646,349
Utilities	\$0	\$2,526,230	\$5,435,424	\$7,961,654
Construction	\$0	\$245,896,243	\$3,042,743	\$248,938,985
Manufacturing	\$0	\$10,733,809	\$4,112,539	\$14,846,348
Wholesale Trade	\$0	\$22,107,205	\$8,971,231	\$31,078,435
Retail Trade	\$0	\$7,883,292	\$19,583,363	\$27,466,655
Transportation and Warehousing	\$0	\$5,715,326	\$5,551,780	\$11,267,106
Information	\$0	\$5,832,002	\$11,632,842	\$17,464,844
Finance and Insurance	\$0	\$4,843,028	\$21,868,133	\$26,711,161
Real Estate and Rental and Leasing	\$0	\$12,426,167	\$46,820,579	\$59,246,746
Professional, Scientific and Technical Services	\$0	\$40,602,630	\$9,295,803	\$49,898,433
Management of Companies and Enterprises	\$0	\$2,248,061	\$1,991,124	\$4,239,185
Administrative and Support and Waste Management and Remediation Services	\$0	\$70,458,651	\$6,141,382	\$76,600,033
Educational Services	\$0	\$31,739	\$5,137,343	\$5,169,082
Health Care and Social Services	\$0	\$844	\$33,702,568	\$33,703,412
Arts, Entertainment and Recreation	\$0	\$500,936	\$4,217,345	\$4,718,281
Accommodation and Food Services	\$0	\$1,492,186	\$11,744,011	\$13,236,197
Other Services	\$0	\$4,922,748	\$13,485,456	\$18,408,204
Government	\$143,152,892	\$739,501	\$1,413,025	\$145,305,417
Total	\$143,152,892	\$439,551,907	\$214,519,080	\$797,223,878

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 70: Detailed Economic Impacts of the Army Corps of Engineers—Baltimore District, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$13,147	\$32,431	\$45,578
Mining	\$0	\$58,162	\$5,309	\$63,471
Utilities	\$0	\$254,402	\$546,858	\$801,260
Construction	\$0	\$76,867,476	\$819,552	\$77,687,028
Manufacturing	\$0	\$1,848,441	\$513,217	\$2,361,658
Wholesale Trade	\$0	\$7,334,782	\$2,976,497	\$10,311,279
Retail Trade	\$0	\$3,101,030	\$7,258,934	\$10,359,964
Transportation and Warehousing	\$0	\$1,738,015	\$1,688,262	\$3,426,277
Information	\$0	\$871,294	\$1,632,113	\$2,503,407
Finance and Insurance	\$0	\$1,780,964	\$6,488,753	\$8,269,717
Real Estate and Rental and Leasing	\$0	\$1,197,165	\$1,340,266	\$2,537,431
Professional, Scientific and Technical Services	\$0	\$22,392,672	\$3,831,974	\$26,224,646
Management of Companies and Enterprises	\$0	\$1,162,343	\$1,029,496	\$2,191,839
Administrative and Support and Waste Management and Remediation Services	\$0	\$23,561,088	\$2,833,530	\$26,394,617
Educational Services	\$0	\$17,737	\$3,065,211	\$3,082,948
Health Care and Social Services	\$0	\$433	\$17,499,029	\$17,499,461
Arts, Entertainment and Recreation	\$0	\$129,741	\$1,152,513	\$1,282,253
Accommodation and Food Services	\$0	\$561,187	\$4,091,171	\$4,652,359
Other Services	\$0	\$1,634,099	\$4,611,356	\$6,245,455
Government	\$91,221,605	\$528,777	\$932,182	\$92,682,564
Total	\$91,221,605	\$145,052,954	\$62,348,654	\$298,623,213

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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Figure 71: Detailed Economic Impacts of the Coast Guard Yard, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	2	2
Mining	0	1	1	2
Utilities	0	5	3	8
Construction	0	28	15	43
Manufacturing	0	40	7	47
Wholesale Trade	0	46	29	75
Retail Trade	0	7	198	205
Transportation and Warehousing	0	6	31	38
Information	0	2	17	19
Finance and Insurance	0	4	75	80
Real Estate and Rental and Leasing	0	5	57	62
Professional, Scientific and Technical Services	0	17	56	73
Management of Companies and Enterprises	0	3	7	9
Administrative and Support and Waste Management and Remediation Services	0	105	71	176
Educational Services	0	0	52	52
Health Care and Social Services	0	0	267	267
Arts, Entertainment and Recreation	0	2	43	45
Accommodation and Food Services	0	4	150	154
Other Services	0	13	139	152
Government	1,878	1	8	1,887
Total	1,878	290	1,228	3,396

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 72: Detailed Economic Impacts of the Coast Guard Yard, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$3,597	\$133,274	\$136,871
Mining	\$0	\$192,357	\$60,940	\$253,297
Utilities	\$0	\$4,414,805	\$2,842,940	\$7,257,745
Construction	\$0	\$4,726,834	\$1,580,503	\$6,307,337
Manufacturing	\$0	\$9,664,604	\$2,145,789	\$11,810,394
Wholesale Trade	\$0	\$11,915,596	\$4,670,583	\$16,586,179
Retail Trade	\$0	\$593,875	\$10,180,065	\$10,773,940
Transportation and Warehousing	\$0	\$886,290	\$2,876,897	\$3,763,187
Information	\$0	\$1,248,172	\$6,078,408	\$7,326,580
Finance and Insurance	\$0	\$975,238	\$11,427,464	\$12,402,702
Real Estate and Rental and Leasing	\$0	\$1,607,649	\$24,304,500	\$25,912,148
Professional, Scientific and Technical Services	\$0	\$2,339,502	\$4,827,519	\$7,167,021
Management of Companies and Enterprises	\$0	\$625,556	\$1,037,141	\$1,662,697
Administrative and Support and Waste Management and Remediation Services	\$0	\$8,332,575	\$3,188,291	\$11,520,865
Educational Services	\$0	\$18,377	\$2,632,721	\$2,651,097
Health Care and Social Services	\$0	\$22,705	\$17,587,050	\$17,609,755
Arts, Entertainment and Recreation	\$0	\$99,308	\$2,187,192	\$2,286,500
Accommodation and Food Services	\$0	\$238,798	\$6,109,135	\$6,347,933
Other Services	\$0	\$1,755,162	\$7,031,655	\$8,786,817
Government	\$307,966,830	\$156,997	\$736,922	\$308,860,749
Total	\$307,966,830	\$49,817,996	\$111,638,988	\$469,423,814

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 73: Detailed Economic Impacts of the Coast Guard Yard, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$777	\$16,909	\$17,686
Mining	\$0	\$5,850	\$2,756	\$8,605
Utilities	\$0	\$497,728	\$286,017	\$783,745
Construction	\$0	\$1,282,151	\$425,714	\$1,707,864
Manufacturing	\$0	\$2,735,923	\$267,586	\$3,003,509
Wholesale Trade	\$0	\$3,953,386	\$1,549,617	\$5,503,003
Retail Trade	\$0	\$208,485	\$3,773,425	\$3,981,910
Transportation and Warehousing	\$0	\$307,898	\$875,463	\$1,183,361
Information	\$0	\$196,022	\$852,200	\$1,048,221
Finance and Insurance	\$0	\$374,990	\$3,389,369	\$3,764,359
Real Estate and Rental and Leasing	\$0	\$111,570	\$699,669	\$811,239
Professional, Scientific and Technical Services	\$0	\$1,089,795	\$1,990,609	\$3,080,404
Management of Companies and Enterprises	\$0	\$323,439	\$536,246	\$859,685
Administrative and Support and Waste Management and Remediation Services	\$0	\$3,070,119	\$1,472,497	\$4,542,615
Educational Services	\$0	\$10,304	\$1,570,297	\$1,580,601
Health Care and Social Services	\$0	\$10,053	\$9,132,271	\$9,142,324
Arts, Entertainment and Recreation	\$0	\$27,478	\$596,453	\$623,931
Accommodation and Food Services	\$0	\$83,081	\$2,128,204	\$2,211,285
Other Services	\$0	\$678,255	\$2,403,376	\$3,081,631
Government	\$123,379,594	\$125,311	\$485,143	\$123,990,048
Total	\$123,379,594	\$15,092,612	\$32,453,820	\$170,926,025

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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Figure 74: Detailed Economic Impacts of Fort Detrick, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	2	12	15
Mining	0	8	3	11
Utilities	0	94	19	113
Construction	0	568	85	652
Manufacturing	0	18	39	57
Wholesale Trade	0	144	165	310
Retail Trade	0	131	1,125	1,256
Transportation and Warehousing	0	74	178	252
Information	0	49	96	146
Finance and Insurance	0	213	427	640
Real Estate and Rental and Leasing	0	112	326	438
Professional, Scientific and Technical Services	0	1,022	319	1,341
Management of Companies and Enterprises	0	24	39	63
Administrative and Support and Waste Management and Remediation Services	0	408	402	810
Educational Services	0	100	296	397
Health Care and Social Services	0	0	1,516	1,516
Arts, Entertainment and Recreation	0	30	246	276
Accommodation and Food Services	0	687	853	1,540
Other Services	0	1,122	790	1,912
Government	8,641	21	46	8,707
Total	8,641	4,830	6,982	20,453

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 75: Detailed Economic Impacts of Fort Detrick, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$124,120	\$1,331,416	\$1,455,536
Mining	\$0	\$1,727,271	\$608,817	\$2,336,088
Utilities	\$0	\$88,326,414	\$28,393,426	\$116,719,840
Construction	\$0	\$94,484,666	\$15,795,724	\$110,280,390
Manufacturing	\$0	\$8,490,945	\$21,435,841	\$29,926,786
Wholesale Trade	\$0	\$37,458,131	\$46,667,907	\$84,126,038
Retail Trade	\$0	\$10,650,692	\$101,733,049	\$112,383,742
Transportation and Warehousing	\$0	\$10,487,795	\$28,758,784	\$39,246,580
Information	\$0	\$25,538,991	\$60,713,047	\$86,252,038
Finance and Insurance	\$0	\$40,488,728	\$114,140,225	\$154,628,953
Real Estate and Rental and Leasing	\$0	\$30,684,146	\$242,917,285	\$273,601,431
Professional, Scientific and Technical Services	\$0	\$207,662,894	\$48,247,780	\$255,910,674
Management of Companies and Enterprises	\$0	\$6,013,711	\$10,362,470	\$16,376,182
Administrative and Support and Waste Management and Remediation Services	\$0	\$43,150,286	\$31,865,852	\$75,016,137
Educational Services	\$0	\$4,855,204	\$26,346,820	\$31,202,024
Health Care and Social Services	\$0	\$33,972	\$175,687,663	\$175,721,635
Arts, Entertainment and Recreation	\$0	\$1,650,587	\$21,862,417	\$23,513,004
Accommodation and Food Services	\$0	\$71,400,665	\$61,046,651	\$132,447,316
Other Services	\$0	\$180,161,225	\$70,248,793	\$250,410,018
Government	\$2,667,612,687	\$2,528,029	\$7,361,989	\$2,677,502,704
Total	\$2,667,612,687	\$865,918,469	\$1,115,525,960	\$4,649,057,116

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 76: Detailed Economic Impacts of Fort Detrick, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$22,352	\$168,928	\$191,280
Mining	\$0	\$115,593	\$27,543	\$143,136
Utilities	\$0	\$9,426,319	\$2,856,565	\$12,282,884
Construction	\$0	\$25,628,810	\$4,254,619	\$29,883,430
Manufacturing	\$0	\$1,307,561	\$2,673,302	\$3,980,863
Wholesale Trade	\$0	\$12,427,950	\$15,483,592	\$27,911,542
Retail Trade	\$0	\$4,963,549	\$37,709,197	\$42,672,746
Transportation and Warehousing	\$0	\$3,377,538	\$8,750,929	\$12,128,466
Information	\$0	\$4,317,353	\$8,512,636	\$12,829,989
Finance and Insurance	\$0	\$15,034,390	\$33,855,199	\$48,889,589
Real Estate and Rental and Leasing	\$0	\$2,257,110	\$6,989,147	\$9,246,257
Professional, Scientific and Technical Services	\$0	\$93,704,386	\$19,894,217	\$113,598,603
Management of Companies and Enterprises	\$0	\$3,109,345	\$5,357,839	\$8,467,184
Administrative and Support and Waste Management and Remediation Services	\$0	\$17,761,500	\$14,715,642	\$32,477,142
Educational Services	\$0	\$2,692,498	\$15,715,188	\$18,407,686
Health Care and Social Services	\$0	\$17,293	\$91,227,051	\$91,244,344
Arts, Entertainment and Recreation	\$0	\$473,438	\$5,963,174	\$6,436,611
Accommodation and Food Services	\$0	\$22,177,520	\$21,266,455	\$43,443,975
Other Services	\$0	\$55,043,809	\$24,011,676	\$79,055,485
Government	\$1,092,595,773	\$2,009,479	\$4,847,658	\$1,099,452,911
Total	\$1,092,595,773	\$275,867,792	\$324,280,558	\$1,692,744,123

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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Figure 77: Detailed Economic Impacts of Fort Meade, FY 2016/2017—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	6	99	104
Mining	0	10	24	33
Utilities	0	37	151	188
Construction	0	3,017	687	3,703
Manufacturing	0	138	317	455
Wholesale Trade	0	578	1,343	1,921
Retail Trade	0	184	9,136	9,320
Transportation and Warehousing	0	484	1,444	1,928
Information	0	3,273	782	4,055
Finance and Insurance	0	487	3,466	3,953
Real Estate and Rental and Leasing	0	1,198	2,646	3,844
Professional, Scientific and Technical Services	7,303	21,812	2,591	31,706
Management of Companies and Enterprises	0	275	313	589
Administrative and Support and Waste Management and Remediation Services	0	5,754	3,267	9,021
Educational Services	0	306	2,409	2,715
Health Care and Social Services	0	0	12,304	12,304
Arts, Entertainment and Recreation	0	649	2,000	2,649
Accommodation and Food Services	0	1,089	6,926	8,015
Other Services	0	3,279	6,414	9,694
Government	44,970	1,773	370	47,114
Total	52,273	44,348	56,688	153,310

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 78: Detailed Economic Impacts of Fort Meade, FY 2016/2017—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$371,083	\$7,202,484	\$7,573,566
Mining	\$0	\$2,155,877	\$3,293,777	\$5,449,654
Utilities	\$0	\$54,986,902	\$153,505,890	\$208,492,792
Construction	\$0	\$456,704,398	\$85,527,040	\$542,231,438
Manufacturing	\$0	\$42,866,130	\$115,952,079	\$158,818,209
Wholesale Trade	\$0	\$150,260,466	\$252,560,686	\$402,821,152
Retail Trade	\$0	\$15,081,367	\$550,748,094	\$565,829,460
Transportation and Warehousing	\$0	\$67,058,027	\$155,798,018	\$222,856,046
Information	\$0	\$1,672,711,732	\$328,309,273	\$2,001,021,006
Finance and Insurance	\$0	\$111,034,708	\$617,209,224	\$728,243,932
Real Estate and Rental and Leasing	\$0	\$327,081,707	\$1,315,478,318	\$1,642,560,026
Professional, Scientific and Technical Services	\$2,168,642,649	\$3,287,410,829	\$261,253,191	\$5,717,306,669
Management of Companies and Enterprises	\$0	\$68,100,038	\$56,074,131	\$124,174,169
Administrative and Support and Waste Management and Remediation Services	\$0	\$473,462,776	\$172,560,591	\$646,023,367
Educational Services	\$0	\$43,676,892	\$143,080,845	\$186,757,738
Health Care and Social Services	\$0	\$17,921	\$950,315,307	\$950,333,228
Arts, Entertainment and Recreation	\$0	\$31,104,958	\$118,416,324	\$149,521,283
Accommodation and Food Services	\$0	\$72,002,826	\$330,435,823	\$402,438,649
Other Services	\$0	\$454,642,393	\$380,048,652	\$834,691,045
Government	\$5,678,577,549	\$419,783,383	\$39,827,038	\$6,138,187,970
Total	\$7,847,220,198	\$7,750,514,414	\$6,037,596,787	\$21,635,331,400

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 79: Detailed Economic Impacts of Fort Meade, FY 2016/2017—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$60,434	\$913,922	\$974,356
Mining	\$0	\$198,327	\$149,158	\$347,484
Utilities	\$0	\$5,491,339	\$15,443,828	\$20,935,167
Construction	\$0	\$140,222,428	\$23,036,802	\$163,259,230
Manufacturing	\$0	\$8,848,643	\$14,462,880	\$23,311,522
Wholesale Trade	\$0	\$49,853,784	\$83,795,199	\$133,648,983
Retail Trade	\$0	\$5,931,018	\$204,144,793	\$210,075,810
Transportation and Warehousing	\$0	\$20,582,904	\$47,400,012	\$67,982,916
Information	\$0	\$271,902,260	\$46,039,809	\$317,942,068
Finance and Insurance	\$0	\$39,869,332	\$183,087,403	\$222,956,734
Real Estate and Rental and Leasing	\$0	\$23,502,534	\$37,801,853	\$61,304,387
Professional, Scientific and Technical Services	\$834,075,854	\$2,246,472,326	\$107,716,806	\$3,188,264,986
Management of Companies and Enterprises	\$0	\$35,210,623	\$28,992,717	\$64,203,340
Administrative and Support and Waste Management and Remediation Services	\$0	\$260,822,391	\$79,670,968	\$340,493,359
Educational Services	\$0	\$24,685,713	\$85,350,265	\$110,035,978
Health Care and Social Services	\$0	\$9,335	\$493,449,241	\$493,458,577
Arts, Entertainment and Recreation	\$0	\$6,886,418	\$32,314,106	\$39,200,525
Accommodation and Food Services	\$0	\$26,027,480	\$115,111,808	\$141,139,288
Other Services	\$0	\$176,153,999	\$129,917,088	\$306,071,086
Government	\$2,812,329,198	\$233,921,237	\$26,236,881	\$3,072,487,316
Total	\$3,646,405,052	\$3,576,652,526	\$1,755,035,535	\$8,978,093,114

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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Figure 80: Detailed Economic Impacts of the Joint Base Andrews, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	1	16	16
Mining	0	1	4	4
Utilities	0	2	24	26
Construction	0	367	109	476
Manufacturing	0	9	50	60
Wholesale Trade	0	64	213	277
Retail Trade	0	475	1,448	1,923
Transportation and Warehousing	0	32	229	261
Information	0	17	124	141
Finance and Insurance	0	25	550	576
Real Estate and Rental and Leasing	0	60	420	480
Professional, Scientific and Technical Services	0	663	411	1,074
Management of Companies and Enterprises	0	12	50	62
Administrative and Support and Waste Management and Remediation Services	0	299	518	817
Educational Services	0	30	381	410
Health Care and Social Services	0	0	1,951	1,951
Arts, Entertainment and Recreation	0	13	317	330
Accommodation and Food Services	0	33	1,098	1,131
Other Services	0	106	1,017	1,123
Government	15,506	7	59	15,571
Total	15,506	2,216	8,987	26,709

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 81: Detailed Economic Impacts of the Joint Base Andrews, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$36,596	\$1,142,047	\$1,178,643
Mining	\$0	\$137,087	\$522,212	\$659,299
Utilities	\$0	\$2,467,292	\$24,358,700	\$26,825,992
Construction	\$0	\$54,949,536	\$13,545,932	\$68,495,468
Manufacturing	\$0	\$3,085,540	\$18,387,310	\$21,472,850
Wholesale Trade	\$0	\$16,622,676	\$40,026,050	\$56,648,726
Retail Trade	\$0	\$37,764,658	\$87,246,891	\$125,011,550
Transportation and Warehousing	\$0	\$4,403,150	\$24,659,368	\$29,062,518
Information	\$0	\$9,351,617	\$52,082,819	\$61,434,436
Finance and Insurance	\$0	\$5,790,370	\$97,915,866	\$103,706,237
Real Estate and Rental and Leasing	\$0	\$16,599,879	\$208,310,964	\$224,910,842
Professional, Scientific and Technical Services	\$0	\$135,486,567	\$41,375,332	\$176,861,899
Management of Companies and Enterprises	\$0	\$2,969,362	\$8,887,917	\$11,857,279
Administrative and Support and Waste Management and Remediation Services	\$0	\$41,228,814	\$27,326,347	\$68,555,161
Educational Services	\$0	\$4,279,230	\$22,577,131	\$26,856,361
Health Care and Social Services	\$0	\$833	\$150,702,989	\$150,703,822
Arts, Entertainment and Recreation	\$0	\$734,234	\$18,746,900	\$19,481,134
Accommodation and Food Services	\$0	\$2,047,109	\$52,356,000	\$54,403,108
Other Services	\$0	\$14,392,120	\$60,256,054	\$74,648,174
Government	\$3,252,413,851	\$836,601	\$6,314,827	\$3,259,565,280
Total	\$3,252,413,851	\$353,183,273	\$956,741,654	\$4,562,338,779

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 82: Detailed Economic Impacts of the Joint Base Andrews, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$7,507	\$144,897	\$152,404
Mining	\$0	\$13,017	\$23,619	\$36,636
Utilities	\$0	\$246,943	\$2,450,640	\$2,697,583
Construction	\$0	\$17,453,534	\$3,648,637	\$21,102,171
Manufacturing	\$0	\$597,274	\$2,293,022	\$2,890,296
Wholesale Trade	\$0	\$5,515,112	\$13,279,940	\$18,795,052
Retail Trade	\$0	\$16,936,640	\$32,339,639	\$49,276,278
Transportation and Warehousing	\$0	\$1,493,790	\$7,503,824	\$8,997,614
Information	\$0	\$1,481,927	\$7,302,292	\$8,784,218
Finance and Insurance	\$0	\$2,083,337	\$29,042,213	\$31,125,550
Real Estate and Rental and Leasing	\$0	\$1,216,978	\$5,995,347	\$7,212,325
Professional, Scientific and Technical Services	\$0	\$63,157,552	\$17,060,747	\$80,218,299
Management of Companies and Enterprises	\$0	\$1,535,287	\$4,595,432	\$6,130,719
Administrative and Support and Waste Management and Remediation Services	\$0	\$14,352,097	\$12,620,004	\$26,972,101
Educational Services	\$0	\$2,410,917	\$13,466,414	\$15,877,331
Health Care and Social Services	\$0	\$432	\$78,253,932	\$78,254,364
Arts, Entertainment and Recreation	\$0	\$188,954	\$5,112,784	\$5,301,739
Accommodation and Food Services	\$0	\$792,072	\$18,238,950	\$19,031,022
Other Services	\$0	\$5,532,222	\$20,595,543	\$26,127,765
Government	\$1,045,397,647	\$660,880	\$4,157,652	\$1,050,216,179
Total	\$1,045,397,647	\$135,676,471	\$278,125,528	\$1,459,199,646

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 83: Detailed Economic Impacts of Maryland Military Department-MD Army & Air National Guard, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	1	2	3
Mining	0	1	0	2
Utilities	0	3	3	6
Construction	0	321	14	335
Manufacturing	0	6	7	13
Wholesale Trade	0	25	28	53
Retail Trade	0	144	188	332
Transportation and Warehousing	0	13	30	43
Information	0	7	16	23
Finance and Insurance	0	9	71	80
Real Estate and Rental and Leasing	0	16	54	70
Professional, Scientific and Technical Services	0	120	53	173
Management of Companies and Enterprises	0	3	6	9
Administrative and Support and Waste Management and Remediation Services	0	190	67	257
Educational Services	0	1	50	51
Health Care and Social Services	0	0	253	253
Arts, Entertainment and Recreation	0	5	41	46
Accommodation and Food Services	0	14	142	156
Other Services	0	10	132	141
Government	1,872	3	8	1,882
Total	1,872	893	1,164	3,929

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations

RESI of Towson University

Figure 84: Detailed Economic Impacts of Maryland Military Department-MD Army & Air National Guard, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$27,467	\$233,519	\$260,986
Mining	\$0	\$289,223	\$106,791	\$396,014
Utilities	\$0	\$3,146,853	\$4,977,062	\$8,123,915
Construction	\$0	\$53,399,667	\$2,772,889	\$56,172,555
Manufacturing	\$0	\$2,778,329	\$3,759,411	\$6,537,740
Wholesale Trade	\$0	\$6,525,180	\$8,188,437	\$14,713,617
Retail Trade	\$0	\$12,074,534	\$17,855,997	\$29,930,531
Transportation and Warehousing	\$0	\$1,997,960	\$5,051,081	\$7,049,041
Information	\$0	\$3,866,491	\$10,644,577	\$14,511,068
Finance and Insurance	\$0	\$2,096,220	\$20,011,418	\$22,107,638
Real Estate and Rental and Leasing	\$0	\$4,577,645	\$42,649,202	\$47,226,846
Professional, Scientific and Technical Services	\$0	\$19,394,067	\$8,470,129	\$27,864,195
Management of Companies and Enterprises	\$0	\$753,302	\$1,818,022	\$2,571,324
Administrative and Support and Waste Management and Remediation Services	\$0	\$19,360,696	\$5,594,601	\$24,955,297
Educational Services	\$0	\$176,539	\$4,638,454	\$4,814,994
Health Care and Social Services	\$0	\$11,845	\$30,811,253	\$30,823,098
Arts, Entertainment and Recreation	\$0	\$311,478	\$3,839,160	\$4,150,638
Accommodation and Food Services	\$0	\$812,670	\$10,713,222	\$11,525,892
Other Services	\$0	\$1,063,574	\$12,321,929	\$13,385,503
Government	\$713,610,092	\$334,101	\$1,291,273	\$715,235,465
Total	\$713,610,092	\$132,997,840	\$195,748,425	\$1,042,356,357

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations

RESI of Towson University

Figure 85: Detailed Economic Impacts of Maryland Military Department-MD Army & Air National Guard, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$6,159	\$29,631	\$35,790
Mining	\$0	\$31,106	\$4,836	\$35,941
Utilities	\$0	\$337,306	\$500,729	\$838,035
Construction	\$0	\$14,484,816	\$746,881	\$15,231,696
Manufacturing	\$0	\$455,345	\$468,915	\$924,260
Wholesale Trade	\$0	\$2,164,940	\$2,716,779	\$4,881,720
Retail Trade	\$0	\$4,130,189	\$6,618,650	\$10,748,839
Transportation and Warehousing	\$0	\$645,730	\$1,536,749	\$2,182,478
Information	\$0	\$597,663	\$1,492,715	\$2,090,377
Finance and Insurance	\$0	\$763,965	\$5,936,122	\$6,700,086
Real Estate and Rental and Leasing	\$0	\$400,709	\$1,225,620	\$1,626,329
Professional, Scientific and Technical Services	\$0	\$9,886,564	\$3,492,309	\$13,378,873
Management of Companies and Enterprises	\$0	\$389,489	\$939,995	\$1,329,484
Administrative and Support and Waste Management and Remediation Services	\$0	\$7,297,980	\$2,583,035	\$9,881,015
Educational Services	\$0	\$99,335	\$2,766,914	\$2,866,249
Health Care and Social Services	\$0	\$6,027	\$15,998,687	\$16,004,713
Arts, Entertainment and Recreation	\$0	\$77,688	\$1,047,637	\$1,125,325
Accommodation and Food Services	\$0	\$330,436	\$3,732,097	\$4,062,533
Other Services	\$0	\$400,463	\$4,212,157	\$4,612,619
Government	\$191,594,425	\$254,336	\$850,641	\$192,699,402
Total	\$191,594,425	\$42,760,242	\$56,901,098	\$291,255,766

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 86: Detailed Economic Impacts of the National Maritime Intelligence Center, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	4	4
Mining	0	0	0	1
Utilities	0	5	5	10
Construction	0	19	24	42
Manufacturing	0	0	57	57
Wholesale Trade	0	0	27	27
Retail Trade	0	2	292	294
Transportation and Warehousing	0	1	49	49
Information	0	0	46	46
Finance and Insurance	0	0	182	183
Real Estate and Rental and Leasing	0	0	26	26
Professional, Scientific and Technical Services	0	2	84	86
Management of Companies and Enterprises	0	0	7	7
Administrative and Support and Waste Management and Remediation Services	0	1	130	131
Educational Services	0	0	123	123
Health Care and Social Services	0	0	366	366
Arts, Entertainment and Recreation	0	0	65	66
Accommodation and Food Services	0	0	270	270
Other Services	0	0	196	196
Government	2,985	0	7	2,992
Total	2,985	33	1,959	4,976

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 87: Detailed Economic Impacts of the National Maritime Intelligence Center, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$1,519	\$294,474	\$295,993
Mining	\$0	\$83,370	\$94,991	\$178,361
Utilities	\$0	\$6,181,751	\$5,714,643	\$11,896,394
Construction	\$0	\$3,121,559	\$3,187,476	\$6,309,035
Manufacturing	\$0	\$203,253	\$13,600,431	\$13,803,684
Wholesale Trade	\$0	\$107,961	\$2,628,448	\$2,736,409
Retail Trade	\$0	\$174,796	\$18,951,944	\$19,126,740
Transportation and Warehousing	\$0	\$100,411	\$4,892,088	\$4,992,499
Information	\$0	\$70,716	\$15,344,853	\$15,415,569
Finance and Insurance	\$0	\$77,422	\$35,509,508	\$35,586,931
Real Estate and Rental and Leasing	\$0	\$131,249	\$35,402,025	\$35,533,274
Professional, Scientific and Technical Services	\$0	\$344,724	\$9,339,151	\$9,683,875
Management of Companies and Enterprises	\$0	\$20,015	\$490,882	\$510,897
Administrative and Support and Waste Management and Remediation Services	\$0	\$83,806	\$7,142,566	\$7,226,372
Educational Services	\$0	\$713	\$10,891,236	\$10,891,949
Health Care and Social Services	\$0	\$6	\$28,968,056	\$28,968,061
Arts, Entertainment and Recreation	\$0	\$5,098	\$4,076,497	\$4,081,596
Accommodation and Food Services	\$0	\$18,071	\$14,608,981	\$14,627,052
Other Services	\$0	\$41,375	\$12,156,841	\$12,198,216
Government	\$616,840,291	\$13,134	\$985,061	\$617,838,485
Total	\$616,840,291	\$10,780,949	\$224,280,151	\$851,901,391

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 88: Detailed Economic Impacts of the National Maritime Intelligence Center, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$370	\$34,088	\$34,458
Mining	\$0	\$3,952	\$5,505	\$9,457
Utilities	\$0	\$631,915	\$574,890	\$1,206,805
Construction	\$0	\$846,734	\$855,583	\$1,702,317
Manufacturing	\$0	\$25,263	\$3,623,131	\$3,648,395
Wholesale Trade	\$0	\$35,820	\$1,202,790	\$1,238,610
Retail Trade	\$0	\$77,280	\$6,643,413	\$6,720,694
Transportation and Warehousing	\$0	\$31,981	\$1,583,692	\$1,615,673
Information	\$0	\$10,063	\$2,928,834	\$2,938,897
Finance and Insurance	\$0	\$29,669	\$6,628,719	\$6,658,388
Real Estate and Rental and Leasing	\$0	\$13,420	\$1,170,712	\$1,184,132
Professional, Scientific and Technical Services	\$0	\$167,420	\$4,204,462	\$4,371,882
Management of Companies and Enterprises	\$0	\$10,348	\$340,400	\$350,748
Administrative and Support and Waste Management and Remediation Services	\$0	\$41,693	\$3,493,581	\$3,535,274
Educational Services	\$0	\$400	\$6,799,659	\$6,800,059
Health Care and Social Services	\$0	\$3	\$13,906,941	\$13,906,944
Arts, Entertainment and Recreation	\$0	\$1,243	\$1,164,158	\$1,165,401
Accommodation and Food Services	\$0	\$6,856	\$5,414,727	\$5,421,583
Other Services	\$0	\$15,949	\$4,066,560	\$4,082,508
Government	\$280,290,464	\$8,977	\$559,249	\$280,858,690
Total	\$280,290,464	\$1,959,355	\$65,201,095	\$347,450,914

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

**Figure 89: Detailed Economic Impacts of Naval Air Station Patuxent River, FY 2016—
Employment**

Industry	Direct	Indirect	Induced	Total
Agriculture	0	5	37	41
Mining	0	2	9	11
Utilities	0	13	56	69
Construction	0	48	255	302
Manufacturing	0	377	118	495
Wholesale Trade	0	81	498	579
Retail Trade	0	31	3,389	3,420
Transportation and Warehousing	0	220	536	755
Information	0	125	290	415
Finance and Insurance	0	260	1,286	1,546
Real Estate and Rental and Leasing	0	471	982	1,453
Professional, Scientific and Technical Services	0	4,911	961	5,872
Management of Companies and Enterprises	0	79	116	195
Administrative and Support and Waste Management and Remediation Services	0	10,664	1,212	11,876
Educational Services	0	7	893	899
Health Care and Social Services	0	8	4,565	4,573
Arts, Entertainment and Recreation	0	168	742	910
Accommodation and Food Services	0	519	2,569	3,088
Other Services	0	195	2,380	2,575
Government	21,858	62	137	22,057
Total	21,858	18,244	21,029	61,132

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations

RESI of Towson University

Figure 90: Detailed Economic Impacts of Naval Air Station Patuxent River, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$295,618	\$2,872,485	\$3,168,103
Mining	\$0	\$370,156	\$1,313,571	\$1,683,727
Utilities	\$0	\$18,962,398	\$61,236,348	\$80,198,746
Construction	\$0	\$7,978,800	\$34,096,859	\$42,075,659
Manufacturing	\$0	\$136,661,994	\$46,245,203	\$182,907,196
Wholesale Trade	\$0	\$21,072,997	\$100,708,643	\$121,781,640
Retail Trade	\$0	\$2,623,776	\$219,580,762	\$222,204,539
Transportation and Warehousing	\$0	\$30,228,670	\$62,098,090	\$92,326,760
Information	\$0	\$66,223,868	\$130,956,866	\$197,180,734
Finance and Insurance	\$0	\$58,886,662	\$246,195,778	\$305,082,440
Real Estate and Rental and Leasing	\$0	\$127,391,104	\$524,407,747	\$651,798,852
Professional, Scientific and Technical Services	\$0	\$1,026,336,136	\$104,151,149	\$1,130,487,286
Management of Companies and Enterprises	\$0	\$19,568,657	\$22,360,607	\$41,929,264
Administrative and Support and Waste Management and Remediation Services	\$0	\$868,907,191	\$68,790,878	\$937,698,069
Educational Services	\$0	\$314,923	\$56,971,357	\$57,286,281
Health Care and Social Services	\$0	\$917,313	\$379,018,732	\$379,936,046
Arts, Entertainment and Recreation	\$0	\$10,658,253	\$47,201,992	\$57,860,245
Accommodation and Food Services	\$0	\$31,274,843	\$131,751,541	\$163,026,384
Other Services	\$0	\$17,923,138	\$151,565,866	\$169,489,004
Government	\$3,835,617,019	\$7,367,599	\$15,883,547	\$3,858,868,166
Total	\$3,835,617,019	\$2,453,964,097	\$2,407,408,024	\$8,696,989,140

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations

RESI of Towson University

Figure 91: Detailed Economic Impacts of Naval Air Station Patuxent River, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$61,350	\$364,475	\$425,825
Mining	\$0	\$23,735	\$59,460	\$83,195
Utilities	\$0	\$1,892,297	\$6,160,808	\$8,053,105
Construction	\$0	\$2,161,993	\$9,184,047	\$11,346,041
Manufacturing	\$0	\$28,746,509	\$5,767,855	\$34,514,364
Wholesale Trade	\$0	\$6,991,650	\$33,413,359	\$40,405,009
Retail Trade	\$0	\$1,049,465	\$81,391,595	\$82,441,060
Transportation and Warehousing	\$0	\$9,566,344	\$18,893,946	\$28,460,290
Information	\$0	\$10,507,143	\$18,363,278	\$28,870,421
Finance and Insurance	\$0	\$21,200,550	\$73,028,143	\$94,228,693
Real Estate and Rental and Leasing	\$0	\$9,150,393	\$15,077,235	\$24,227,628
Professional, Scientific and Technical Services	\$0	\$439,315,851	\$42,943,500	\$482,259,350
Management of Companies and Enterprises	\$0	\$10,117,830	\$11,561,387	\$21,679,217
Administrative and Support and Waste Management and Remediation Services	\$0	\$367,690,072	\$31,763,542	\$399,453,614
Educational Services	\$0	\$174,595	\$33,983,387	\$34,157,982
Health Care and Social Services	\$0	\$466,688	\$196,806,122	\$197,272,810
Arts, Entertainment and Recreation	\$0	\$2,529,649	\$12,878,260	\$15,407,909
Accommodation and Food Services	\$0	\$13,222,952	\$45,897,461	\$59,120,413
Other Services	\$0	\$6,520,946	\$51,809,618	\$58,330,564
Government	\$1,973,052,541	\$6,085,793	\$10,461,635	\$1,989,599,969
Total	\$1,973,052,541	\$937,475,806	\$699,809,114	\$3,610,337,461

Sources: IMPLAN, RESI

Figure 92: Detailed Economic Impacts of the Naval Research Laboratory Chesapeake, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	0	0
Mining	0	0	0	0
Utilities	0	0	0	0
Construction	0	0	0	0
Manufacturing	0	0	0	0
Wholesale Trade	0	0	0	1
Retail Trade	0	0	3	4
Transportation and Warehousing	0	0	1	1
Information	0	0	0	0
Finance and Insurance	0	0	1	2
Real Estate and Rental and Leasing	0	1	1	2
Professional, Scientific and Technical Services	0	13	1	14
Management of Companies and Enterprises	0	0	0	0
Administrative and Support and Waste Management and Remediation Services	0	2	1	3
Educational Services	0	0	1	1
Health Care and Social Services	0	0	4	4
Arts, Entertainment and Recreation	0	0	1	1
Accommodation and Food Services	0	6	2	9
Other Services	0	0	2	2
Government	12	0	0	12
Total	12	25	20	57

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 93: Detailed Economic Impacts of the Naval Research Laboratory Chesapeake, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$1,122	\$3,143	\$4,265
Mining	\$0	\$2,549	\$1,437	\$3,987
Utilities	\$0	\$292,269	\$66,983	\$359,252
Construction	\$0	\$22,529	\$37,318	\$59,847
Manufacturing	\$0	\$17,552	\$50,595	\$68,148
Wholesale Trade	\$0	\$46,718	\$110,202	\$156,920
Retail Trade	\$0	\$26,502	\$240,311	\$266,813
Transportation and Warehousing	\$0	\$36,909	\$67,979	\$104,888
Information	\$0	\$88,414	\$143,258	\$231,672
Finance and Insurance	\$0	\$77,571	\$269,320	\$346,891
Real Estate and Rental and Leasing	\$0	\$286,431	\$573,984	\$860,415
Professional, Scientific and Technical Services	\$0	\$3,067,896	\$113,993	\$3,181,889
Management of Companies and Enterprises	\$0	\$44,806	\$24,467	\$69,273
Administrative and Support and Waste Management and Remediation Services	\$0	\$181,845	\$75,294	\$257,139
Educational Services	\$0	\$156	\$62,425	\$62,580
Health Care and Social Services	\$0	\$9	\$414,667	\$414,677
Arts, Entertainment and Recreation	\$0	\$7,179	\$51,668	\$58,848
Accommodation and Food Services	\$0	\$693,168	\$144,181	\$837,350
Other Services	\$0	\$26,498	\$165,832	\$192,330
Government	\$2,129,258	\$11,321	\$17,378	\$2,157,958
Total	\$2,129,258	\$4,931,445	\$2,634,437	\$9,695,139

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 94: Detailed Economic Impacts of the Naval Research Laboratory Chesapeake, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$203	\$399	\$602
Mining	\$0	\$74	\$65	\$139
Utilities	\$0	\$28,979	\$6,739	\$35,718
Construction	\$0	\$6,106	\$10,052	\$16,158
Manufacturing	\$0	\$3,324	\$6,311	\$9,634
Wholesale Trade	\$0	\$15,500	\$36,563	\$52,063
Retail Trade	\$0	\$8,698	\$89,076	\$97,774
Transportation and Warehousing	\$0	\$11,069	\$20,682	\$31,751
Information	\$0	\$13,762	\$20,089	\$33,851
Finance and Insurance	\$0	\$27,363	\$79,890	\$107,253
Real Estate and Rental and Leasing	\$0	\$19,168	\$16,495	\$35,663
Professional, Scientific and Technical Services	\$0	\$1,285,230	\$47,000	\$1,332,230
Management of Companies and Enterprises	\$0	\$23,166	\$12,651	\$35,817
Administrative and Support and Waste Management and Remediation Services	\$0	\$91,652	\$34,763	\$126,415
Educational Services	\$0	\$87	\$37,237	\$37,324
Health Care and Social Services	\$0	\$5	\$215,315	\$215,320
Arts, Entertainment and Recreation	\$0	\$1,875	\$14,099	\$15,975
Accommodation and Food Services	\$0	\$213,267	\$50,228	\$263,494
Other Services	\$0	\$9,834	\$56,688	\$66,522
Government	\$1,386,195	\$8,768	\$11,448	\$1,406,411
Total	\$1,386,195	\$1,768,128	\$765,791	\$3,920,114

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

**Figure 95: Detailed Economic Impacts of Naval Support Activity Annapolis, FY 2016—
Employment**

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	8	8
Mining	0	1	2	3
Utilities	0	25	12	37
Construction	0	60	54	113
Manufacturing	0	45	25	70
Wholesale Trade	0	5	106	111
Retail Trade	0	4	717	721
Transportation and Warehousing	0	5	113	118
Information	0	2	61	64
Finance and Insurance	0	5	273	278
Real Estate and Rental and Leasing	0	5	208	213
Professional, Scientific and Technical Services	0	20	203	224
Management of Companies and Enterprises	0	2	25	27
Administrative and Support and Waste Management and Remediation Services	0	114	256	371
Educational Services	0	0	188	188
Health Care and Social Services	0	0	966	966
Arts, Entertainment and Recreation	0	2	157	159
Accommodation and Food Services	0	5	544	549
Other Services	0	8	504	512
Government	8,197	1	29	8,227
Total	8,197	310	4,451	12,958

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 96: Detailed Economic Impacts of Naval Support Activity Annapolis, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$4,016	\$389,312	\$393,328
Mining	\$0	\$184,144	\$178,009	\$362,153
Utilities	\$0	\$21,439,830	\$8,306,229	\$29,746,059
Construction	\$0	\$8,993,696	\$4,615,490	\$13,609,187
Manufacturing	\$0	\$11,418,254	\$6,268,279	\$17,686,533
Wholesale Trade	\$0	\$1,384,232	\$13,641,564	\$15,025,796
Retail Trade	\$0	\$328,767	\$29,730,133	\$30,058,900
Transportation and Warehousing	\$0	\$805,696	\$8,399,871	\$9,205,566
Information	\$0	\$1,075,104	\$17,758,062	\$18,833,166
Finance and Insurance	\$0	\$1,055,313	\$33,385,509	\$34,440,822
Real Estate and Rental and Leasing	\$0	\$1,556,624	\$70,972,352	\$72,528,976
Professional, Scientific and Technical Services	\$0	\$2,919,967	\$14,097,428	\$17,017,394
Management of Companies and Enterprises	\$0	\$498,866	\$3,029,329	\$3,528,195
Administrative and Support and Waste Management and Remediation Services	\$0	\$19,732,576	\$9,310,295	\$29,042,871
Educational Services	\$0	\$2,704	\$7,680,784	\$7,683,488
Health Care and Social Services	\$0	\$173	\$51,375,725	\$51,375,898
Arts, Entertainment and Recreation	\$0	\$93,064	\$6,386,467	\$6,479,531
Accommodation and Food Services	\$0	\$327,341	\$17,842,160	\$18,169,501
Other Services	\$0	\$772,334	\$20,539,907	\$21,312,240
Government	\$1,194,970,070	\$162,243	\$2,152,625	\$1,197,284,937
Total	\$1,194,970,070	\$72,754,943	\$326,059,529	\$1,593,784,541

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

**Figure 97: Detailed Economic Impacts of Naval Support Activity Annapolis, FY 2016—
Employee Compensation**

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$804	\$49,392	\$50,196
Mining	\$0	\$7,343	\$8,047	\$15,390
Utilities	\$0	\$2,311,132	\$835,656	\$3,146,788
Construction	\$0	\$2,821,387	\$1,243,200	\$4,064,587
Manufacturing	\$0	\$2,034,606	\$781,633	\$2,816,239
Wholesale Trade	\$0	\$459,264	\$4,526,031	\$4,985,295
Retail Trade	\$0	\$128,648	\$11,020,011	\$11,148,659
Transportation and Warehousing	\$0	\$260,660	\$2,556,279	\$2,816,938
Information	\$0	\$184,012	\$2,489,573	\$2,673,585
Finance and Insurance	\$0	\$415,846	\$9,901,801	\$10,317,648
Real Estate and Rental and Leasing	\$0	\$112,013	\$2,043,948	\$2,155,961
Professional, Scientific and Technical Services	\$0	\$1,393,934	\$5,813,140	\$7,207,075
Management of Companies and Enterprises	\$0	\$257,935	\$1,566,292	\$1,824,227
Administrative and Support and Waste Management and Remediation Services	\$0	\$6,448,004	\$4,300,222	\$10,748,226
Educational Services	\$0	\$1,511	\$4,581,124	\$4,582,635
Health Care and Social Services	\$0	\$89	\$26,677,567	\$26,677,655
Arts, Entertainment and Recreation	\$0	\$23,910	\$1,741,342	\$1,765,251
Accommodation and Food Services	\$0	\$117,359	\$6,215,571	\$6,332,930
Other Services	\$0	\$221,054	\$7,020,184	\$7,241,237
Government	\$390,342,002	\$116,455	\$1,416,943	\$391,875,400
Total	\$390,342,002	\$17,315,964	\$94,787,955	\$502,445,921

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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**Figure 98: Detailed Economic Impacts of Naval Support Facility Indian Head, FY 2016—
Employment**

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	5	5
Mining	0	0	1	1
Utilities	0	0	7	8
Construction	0	1	34	35
Manufacturing	0	1	16	16
Wholesale Trade	0	8	66	74
Retail Trade	0	0	451	452
Transportation and Warehousing	0	3	71	74
Information	0	2	39	40
Finance and Insurance	0	4	172	175
Real Estate and Rental and Leasing	0	9	131	140
Professional, Scientific and Technical Services	0	170	128	298
Management of Companies and Enterprises	0	1	15	17
Administrative and Support and Waste Management and Remediation Services	0	20	161	181
Educational Services	0	1	118	119
Health Care and Social Services	0	0	608	608
Arts, Entertainment and Recreation	0	1	99	100
Accommodation and Food Services	0	7	342	349
Other Services	0	2	317	319
Government	3,278	1	18	3,297
Total	3,278	230	2,801	6,309

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
RESI of Towson University

Figure 99: Detailed Economic Impacts of Naval Support Facility Indian Head, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$6,546	\$328,276	\$334,822
Mining	\$0	\$8,048	\$150,098	\$158,147
Utilities	\$0	\$259,653	\$7,004,612	\$7,264,265
Construction	\$0	\$156,929	\$3,891,333	\$4,048,263
Manufacturing	\$0	\$169,008	\$5,285,591	\$5,454,599
Wholesale Trade	\$0	\$2,043,515	\$11,502,113	\$13,545,628
Retail Trade	\$0	\$29,113	\$25,066,201	\$25,095,313
Transportation and Warehousing	\$0	\$401,735	\$7,081,390	\$7,483,125
Information	\$0	\$818,100	\$14,974,819	\$15,792,919
Finance and Insurance	\$0	\$854,656	\$28,153,031	\$29,007,688
Real Estate and Rental and Leasing	\$0	\$2,476,812	\$59,835,707	\$62,312,519
Professional, Scientific and Technical Services	\$0	\$34,744,877	\$11,885,497	\$46,630,374
Management of Companies and Enterprises	\$0	\$367,171	\$2,554,272	\$2,921,444
Administrative and Support and Waste Management and Remediation Services	\$0	\$1,574,820	\$7,849,392	\$9,424,213
Educational Services	\$0	\$47,780	\$6,472,756	\$6,520,536
Health Care and Social Services	\$0	\$130	\$43,321,649	\$43,321,778
Arts, Entertainment and Recreation	\$0	\$75,260	\$5,384,167	\$5,459,427
Accommodation and Food Services	\$0	\$465,070	\$15,043,507	\$15,508,577
Other Services	\$0	\$248,915	\$17,319,457	\$17,568,372
Government	\$554,829,674	\$92,676	\$1,815,126	\$556,737,476
Total	\$554,829,674	\$44,840,814	\$274,918,996	\$874,589,484

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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**Figure 100: Detailed Economic Impacts of Naval Support Facility Indian Head, FY 2016—
Employee Compensation**

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$1,462	\$41,648	\$43,110
Mining	\$0	\$763	\$6,784	\$7,548
Utilities	\$0	\$25,852	\$704,705	\$730,557
Construction	\$0	\$42,523	\$1,048,146	\$1,090,669
Manufacturing	\$0	\$34,554	\$659,079	\$693,633
Wholesale Trade	\$0	\$678,002	\$3,816,199	\$4,494,201
Retail Trade	\$0	\$11,491	\$9,291,240	\$9,302,731
Transportation and Warehousing	\$0	\$126,032	\$2,155,085	\$2,281,117
Information	\$0	\$130,984	\$2,099,329	\$2,230,313
Finance and Insurance	\$0	\$289,886	\$8,349,787	\$8,639,673
Real Estate and Rental and Leasing	\$0	\$168,115	\$1,723,545	\$1,891,660
Professional, Scientific and Technical Services	\$0	\$15,814,084	\$4,901,088	\$20,715,172
Management of Companies and Enterprises	\$0	\$189,843	\$1,320,668	\$1,510,511
Administrative and Support and Waste Management and Remediation Services	\$0	\$846,054	\$3,625,584	\$4,471,638
Educational Services	\$0	\$26,683	\$3,860,564	\$3,887,247
Health Care and Social Services	\$0	\$68	\$22,495,434	\$22,495,503
Arts, Entertainment and Recreation	\$0	\$19,799	\$1,467,950	\$1,487,749
Accommodation and Food Services	\$0	\$168,969	\$5,240,622	\$5,409,591
Other Services	\$0	\$92,229	\$5,919,400	\$6,011,629
Government	\$326,246,934	\$75,785	\$1,194,706	\$327,517,424
Total	\$326,246,934	\$18,743,181	\$79,921,561	\$424,911,675

Sources: IMPLAN, RESI

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**Figure 101: Detailed Economic Impacts of Naval Support Activity Bethesda, FY 2016—
Employment**

Industry	Direct	Indirect	Induced	Total
Agriculture	0	1	12	13
Mining	0	4	3	7
Utilities	0	44	19	63
Construction	0	27	85	112
Manufacturing	0	7	39	46
Wholesale Trade	0	90	166	256
Retail Trade	0	17	1,132	1,149
Transportation and Warehousing	0	21	179	200
Information	0	13	97	110
Finance and Insurance	0	29	430	459
Real Estate and Rental and Leasing	0	33	328	361
Professional, Scientific and Technical Services	0	70	321	390
Management of Companies and Enterprises	0	15	39	54
Administrative and Support and Waste Management and Remediation Services	0	188	405	592
Educational Services	0	0	297	297
Health Care and Social Services	0	227	1,524	1,751
Arts, Entertainment and Recreation	0	12	247	259
Accommodation and Food Services	0	1,355	858	2,213
Other Services	0	26	795	821
Government	10,204	12	46	10,262
Total	10,204	2,191	7,022	19,417

Sources: IMPLAN, RESI

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**Figure 102: Detailed Economic Impacts of the Naval Support Activity Bethesda, FY 2016—
Output**

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$88,940	\$553,263	\$642,203
Mining	\$0	\$674,095	\$252,985	\$927,079
Utilities	\$0	\$48,421,300	\$11,800,608	\$60,221,909
Construction	\$0	\$4,559,567	\$6,562,249	\$11,121,816
Manufacturing	\$0	\$2,579,873	\$8,907,713	\$11,487,586
Wholesale Trade	\$0	\$23,400,259	\$19,390,486	\$42,790,745
Retail Trade	\$0	\$1,381,996	\$42,266,327	\$43,648,324
Transportation and Warehousing	\$0	\$2,976,862	\$11,946,028	\$14,922,890
Information	\$0	\$7,193,401	\$25,231,545	\$32,424,946
Finance and Insurance	\$0	\$7,114,540	\$47,435,393	\$54,549,933
Real Estate and Rental and Leasing	\$0	\$9,144,808	\$100,914,914	\$110,059,722
Professional, Scientific and Technical Services	\$0	\$9,973,122	\$20,044,033	\$30,017,155
Management of Companies and Enterprises	\$0	\$3,812,061	\$4,305,726	\$8,117,787
Administrative and Support and Waste Management and Remediation Services	\$0	\$25,308,530	\$13,238,077	\$38,546,606
Educational Services	\$0	\$22,286	\$10,937,042	\$10,959,328
Health Care and Social Services	\$0	\$35,207,016	\$73,007,924	\$108,214,940
Arts, Entertainment and Recreation	\$0	\$674,825	\$9,081,797	\$9,756,623
Accommodation and Food Services	\$0	\$147,288,712	\$25,363,644	\$172,652,356
Other Services	\$0	\$2,487,742	\$29,190,941	\$31,678,683
Government	\$1,103,041,800	\$1,479,356	\$3,059,208	\$1,107,580,364
Total	\$1,103,041,800	\$333,789,290	\$463,489,903	\$1,900,320,994

Sources: IMPLAN, RESI

FY 2016 Economic Impact Analysis of Maryland's Military Installations
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**Figure 103: Detailed Economic Impacts of Naval Support Activity Bethesda, FY 2016—
Employee Compensation**

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$79,906	\$122,665	\$202,571
Mining	\$0	\$74,277	\$37,685	\$111,962
Utilities	\$0	\$8,936,049	\$2,336,995	\$11,273,044
Construction	\$0	\$2,511,913	\$2,290,502	\$4,802,414
Manufacturing	\$0	\$1,744,412	\$1,957,430	\$3,701,842
Wholesale Trade	\$0	\$8,844,612	\$7,843,462	\$16,688,075
Retail Trade	\$0	\$1,240,288	\$18,565,708	\$19,805,996
Transportation and Warehousing	\$0	\$1,724,838	\$4,543,985	\$6,268,823
Information	\$0	\$5,198,501	\$5,889,770	\$11,088,271
Finance and Insurance	\$0	\$4,227,171	\$17,686,735	\$21,913,906
Real Estate and Rental and Leasing	\$0	\$5,500,723	\$13,602,474	\$19,103,197
Professional, Scientific and Technical Services	\$0	\$7,040,875	\$9,550,196	\$16,591,071
Management of Companies and Enterprises	\$0	\$3,273,852	\$2,452,430	\$5,726,282
Administrative and Support and Waste Management and Remediation Services	\$0	\$11,106,352	\$6,891,785	\$17,998,137
Educational Services	\$0	\$15,477	\$7,011,028	\$7,026,506
Health Care and Social Services	\$0	\$17,416,038	\$41,721,215	\$59,137,254
Arts, Entertainment and Recreation	\$0	\$540,120	\$3,197,759	\$3,737,879
Accommodation and Food Services	\$0	\$146,855,810	\$10,635,852	\$157,491,662
Other Services	\$0	\$1,515,442	\$12,064,717	\$13,580,159
Government	\$472,117,098	\$1,378,680	\$2,127,250	\$475,623,028
Total	\$472,117,098	\$229,225,339	\$170,529,643	\$871,872,079

Sources: IMPLAN, RESI

Figure 104: Detailed Economic Impacts of the Naval Surface Warfare Center Carderock, FY 2016—Employment

Industry	Direct	Indirect	Induced	Total
Agriculture	0	0	2	2
Mining	0	0	1	1
Utilities	0	4	4	8
Construction	0	28	16	44
Manufacturing	0	1	8	9
Wholesale Trade	0	9	32	41
Retail Trade	0	22	218	241
Transportation and Warehousing	0	4	35	39
Information	0	4	19	23
Finance and Insurance	0	4	83	87
Real Estate and Rental and Leasing	0	9	63	72
Professional, Scientific and Technical Services	0	134	62	196
Management of Companies and Enterprises	0	2	7	9
Administrative and Support and Waste Management and Remediation Services	0	31	78	109
Educational Services	0	3	57	60
Health Care and Social Services	0	0	294	294
Arts, Entertainment and Recreation	0	2	48	50
Accommodation and Food Services	0	25	166	191
Other Services	0	8	153	162
Government	1,558	1	9	1,568
Total	1,558	292	1,356	3,205

Sources: IMPLAN, RESI

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Figure 105: Detailed Economic Impacts of the Naval Surface Warfare Center Carderock, FY 2016—Output

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$7,133	\$319,799	\$326,933
Mining	\$0	\$61,882	\$146,224	\$208,106
Utilities	\$0	\$6,274,191	\$6,823,375	\$13,097,566
Construction	\$0	\$4,276,300	\$3,791,160	\$8,067,460
Manufacturing	\$0	\$382,797	\$5,149,075	\$5,531,872
Wholesale Trade	\$0	\$2,251,658	\$11,205,519	\$13,457,177
Retail Trade	\$0	\$1,592,145	\$24,420,563	\$26,012,707
Transportation and Warehousing	\$0	\$754,802	\$6,899,419	\$7,654,221
Information	\$0	\$2,129,227	\$14,587,642	\$16,716,869
Finance and Insurance	\$0	\$906,468	\$27,425,086	\$28,331,554
Real Estate and Rental and Leasing	\$0	\$2,355,892	\$58,296,111	\$60,652,002
Professional, Scientific and Technical Services	\$0	\$26,254,936	\$11,579,581	\$37,834,517
Management of Companies and Enterprises	\$0	\$411,012	\$2,488,383	\$2,899,395
Administrative and Support and Waste Management and Remediation Services	\$0	\$3,816,473	\$7,647,410	\$11,463,883
Educational Services	\$0	\$321,756	\$6,307,809	\$6,629,565
Health Care and Social Services	\$0	\$138	\$42,202,641	\$42,202,779
Arts, Entertainment and Recreation	\$0	\$112,333	\$5,245,725	\$5,358,058
Accommodation and Food Services	\$0	\$2,490,326	\$14,655,829	\$17,146,155
Other Services	\$0	\$1,092,886	\$16,872,347	\$17,965,233
Government	\$485,820,969	\$126,421	\$1,768,261	\$487,715,651
Total	\$485,820,969	\$55,618,775	\$267,831,960	\$809,271,704

Sources: IMPLAN, RESI

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Figure 106: Detailed Economic Impacts of the Naval Surface Warfare Center Carderock, FY 2016—Employee Compensation

Industry	Direct	Indirect	Induced	Total
Agriculture	\$0	\$1,369	\$40,572	\$41,942
Mining	\$0	\$2,559	\$6,610	\$9,169
Utilities	\$0	\$621,776	\$686,472	\$1,308,248
Construction	\$0	\$1,307,340	\$1,021,163	\$2,328,503
Manufacturing	\$0	\$69,252	\$642,066	\$711,318
Wholesale Trade	\$0	\$747,061	\$3,717,794	\$4,464,855
Retail Trade	\$0	\$1,113,243	\$9,051,922	\$10,165,166
Transportation and Warehousing	\$0	\$208,433	\$2,099,676	\$2,308,109
Information	\$0	\$380,539	\$2,045,079	\$2,425,618
Finance and Insurance	\$0	\$316,129	\$8,133,955	\$8,450,084
Real Estate and Rental and Leasing	\$0	\$167,511	\$1,679,012	\$1,846,524
Professional, Scientific and Technical Services	\$0	\$12,155,804	\$4,774,913	\$16,930,718
Management of Companies and Enterprises	\$0	\$212,510	\$1,286,600	\$1,499,111
Administrative and Support and Waste Management and Remediation Services	\$0	\$1,455,359	\$3,532,220	\$4,987,579
Educational Services	\$0	\$180,961	\$3,762,210	\$3,943,170
Health Care and Social Services	\$0	\$72	\$21,914,338	\$21,914,410
Arts, Entertainment and Recreation	\$0	\$27,188	\$1,430,264	\$1,457,452
Accommodation and Food Services	\$0	\$787,777	\$5,105,568	\$5,893,345
Other Services	\$0	\$416,325	\$5,766,639	\$6,182,964
Government	\$315,098,875	\$100,272	\$1,163,907	\$316,363,054
Total	\$315,098,875	\$20,271,482	\$77,860,981	\$413,231,338

Sources: IMPLAN, RESI

Appendix D—Impact Trends

For a better understanding of the role that Maryland's military installations have played in the state's economy over time, RESI compared impacts from FY 2008, FY 2012, and FY 2016.²¹⁵ These data show that economic activity associated with Maryland's military installations illustrate an overall trend of growth, as seen in Figure 107.

Figure 107: Total Economic Impact of Maryland's Military Installations (Billions of Dollars), FY 2008-FY 2016

Installation	Employment			Output			Employee Compensation		
	2008	2012	2016	2008	2012	2016	2008	2012	2016
Aberdeen Proving Ground	28,995	58,339	39,289	\$4.3	\$7.0	\$5.1	\$1.6	\$3.4	\$2.1
Adelphi Laboratory Center	2,831	3,242	4,538	\$0.4	\$0.3	\$0.6	\$0.2	\$0.2	\$0.3
Army Corps of Engineers—Baltimore District	1,507	4,810	5,596	\$0.1	\$0.6	\$0.8	\$0.1	\$0.3	\$0.3
Coast Guard Yard	2,395	3,066	3,396	\$0.2	\$0.3	\$0.5	\$0.1	\$0.1	\$0.2
Fort Detrick	13,395	36,782	29,700	\$1.8	\$7.0	\$6.5	\$0.7	\$2.7	\$2.3
Fort George G. Meade ²¹⁶	125,729	153,320	153,310	\$17.8	\$20.7	\$21.6	\$9.2	\$8.5	\$9.0
Joint Base Andrews	12,506	26,955	26,709	\$1.0	\$2.3	\$4.6	\$0.6	\$1.1	\$1.5
Maryland Military Department	3,850	3,509	3,929	\$0.4	\$0.5	\$1.0	\$0.2	\$0.2	\$0.3
Naval Maritime Intelligence Center	3,343	4,027	4,976	\$0.4	\$0.9	\$0.9	\$0.3	\$0.3	\$0.3
Naval Air Station Patuxent River	41,185	36,956	61,132	\$6.6	\$7.5	\$8.7	\$2.4	\$2.4	\$3.6
Naval Research Lab—Chesapeake Bay Detachment	85	83	57	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Naval Support Activity Annapolis	8,886	12,850	12,958	\$0.7	\$1.4	\$1.6	\$0.3	\$0.7	\$0.5
Naval Support Activity Bethesda	11,216	20,326	19,417	\$0.8	\$1.5	\$1.9	\$0.5	\$0.7	\$0.9
Naval Support Facility Indian Head	5,165	4,951	6,309	\$0.5	\$0.5	\$0.9	\$0.3	\$0.3	\$0.4
Naval Surface Warfare Center—Carderock Division	3,082	4,059	3,205	\$0.3	\$0.6	\$0.8	\$0.2	\$0.3	\$0.4
Total	264,170	373,275	374,522	\$35.5	\$51.1	\$55.5	\$16.8	\$21.3	\$22.1

Sources: Commerce, IMPLAN, Jacob France Institute, RESI

²¹⁵ Impacts based FY 2008 data were initially calculated by the Jacob France Institute and were referenced and reported in RESI's 2015 analysis of FY 2012 data.

²¹⁶ Please note that FY 2012 impacts for Fort Meade were revised to be methodologically consistent with the current analysis. Please see Section 9.0 for more information.

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As seen in Figure 107 between FY 2008 and FY 2016 total employment has grown from 264,170 to 374,522, total output has grown from \$35.5 billion to \$55.5 billion, and total employee compensation has increased from \$16.8 billion to \$22.1 billion. This represents an additional 110,352 jobs, \$20.0 billion in output, and \$5.3 billion in employee compensation. Installations such as Aberdeen Proving Ground and Fort Detrick saw rapid increases in total impact between FY 2008 and FY 2012. While total impacts for FY 2016 are lower than they were in FY 2012 for these two installations, when compared to FY 2008, these installations experienced growth. Other installations, such as the Army Corps of Engineers—Baltimore Detachment and Joint Base Andrews, saw sizable increases across all three impact categories when comparing FY 2008 to FY 2012 and FY 2012 to FY 2016.

Appendix E—Fiscal Impacts

As part of the scope of work, RESI also conducted a fiscal impact analysis of Maryland's military installations. These total fiscal impacts are the state and local tax revenues associated with the total economic impacts (that is, the sum of direct, indirect, and induced impacts) that correspond to the installations. These impacts are presented as a statewide aggregate, in Figure 108 as well as by installation, shown in Figure 109.

Figure 108: Total Fiscal Impacts of Maryland's Military Installations, FY 2016

Type	Amount
Property	\$480,064,549
Income	\$773,218,579
Sales	\$492,934,477
Payroll	\$38,081,080
Other	\$402,234,514
Total	\$2,186,533,199

Sources: IMPLAN, RESI

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RESI of Towson University

Figure 109: Total Fiscal Impacts by Installation, FY 2016

Installation	Property	Income	Sales	Payroll	Other	Total
Adelphi Laboratory Center	\$5,016,367	\$9,966,806	\$5,128,627	\$499,338	\$4,515,458	\$25,126,596
Aberdeen Proving Ground	\$52,378,965	\$74,976,749	\$53,893,724	\$3,695,279	\$38,052,362	\$222,997,079
Army Corps of Engineers Baltimore	\$8,200,751	\$11,418,675	\$8,441,681	\$517,495	\$5,142,301	\$33,720,903
Coast Guard Yard	\$3,582,474	\$5,872,585	\$3,677,308	\$296,204	\$3,725,606	\$17,154,177
Fort Detrick	\$54,506,423	\$82,555,009	\$56,029,328	\$4,067,060	\$46,853,436	\$244,011,256
Fort Meade	\$209,490,870	\$318,795,375	\$215,326,337	\$15,558,469	\$151,266,880	\$910,437,931
Indian Head	\$6,378,308	\$14,443,696	\$6,500,195	\$736,345	\$6,517,431	\$34,575,975
Joint Base Andrews	\$25,521,832	\$50,353,239	\$26,097,161	\$2,528,702	\$36,194,327	\$140,695,261
Maryland National Guard	\$5,801,049	\$10,335,071	\$5,944,891	\$504,728	\$8,204,960	\$30,790,699
National Maritime Intelligence Center	\$5,206,609	\$11,779,683	\$5,306,231	\$602,111	\$6,633,211	\$29,527,845
Naval Air Station Patuxent River	\$68,623,554	\$126,977,883	\$70,269,572	\$6,256,487	\$60,510,769	\$332,638,265
Naval Research Laboratory Chesapeake Bay	\$120,128	\$139,091	\$123,990	\$6,793	\$69,966	\$459,968
Naval Support Activity Annapolis	\$8,280,490	\$17,137,277	\$8,457,730	\$870,707	\$12,696,972	\$47,443,176
Naval Support Activity Bethesda	\$20,294,279	\$24,392,811	\$20,936,013	\$1,225,259	\$15,842,895	\$82,691,257
Naval Surface Warfare Center Carderock	\$6,662,450	\$14,074,629	\$6,801,689	\$716,103	\$6,007,940	\$34,262,811
TOTAL	\$480,064,549	\$773,218,579	\$492,934,477	\$38,081,080	\$402,234,514	\$2,186,533,199

Sources: IMPLAN, RESI

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